Public Utilities

Volume 65 No. 9 April 28, 1960

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WHY NOT PRIVATE PLACEMENTS FOR UTILITY SHARES?
By Willard F. Stanley

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Obsolescence *versus* Tax Depreciation for Electric Utilities
By C. P. Guercken

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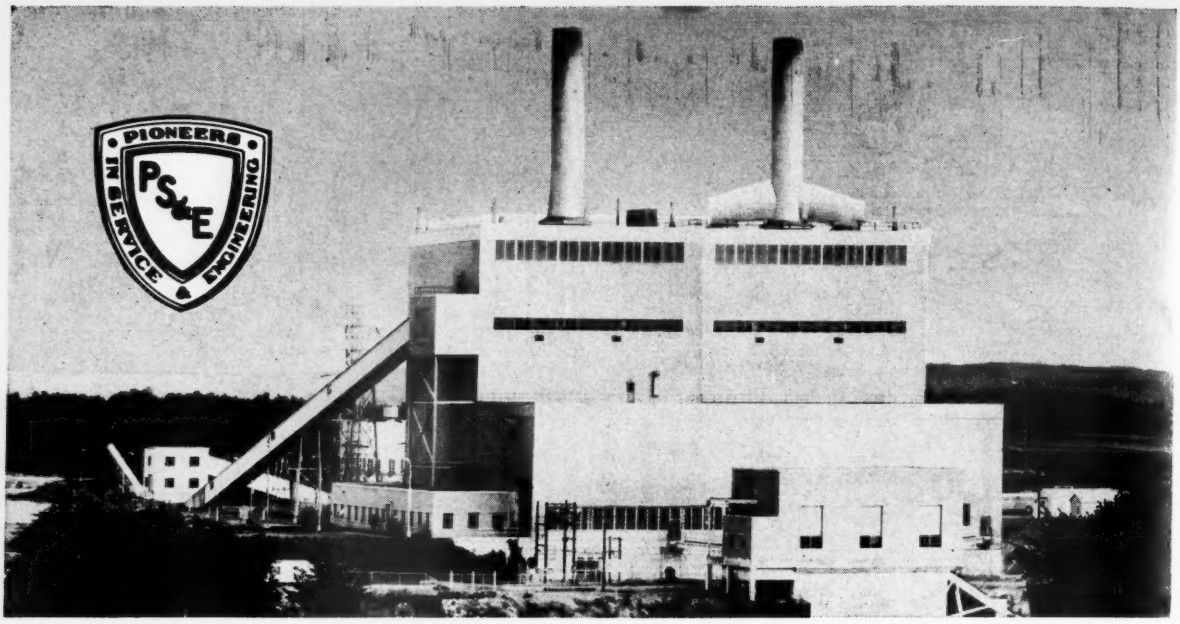
Should We Save Urban Transit, and How?
By Charles E. Stonier

« »

Impact of Inflation on Public Utility Regulation



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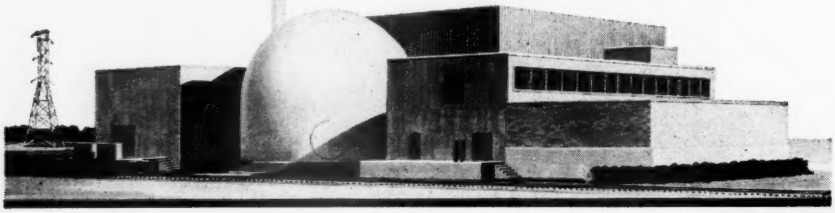

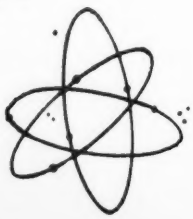

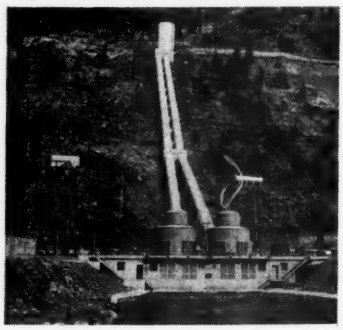

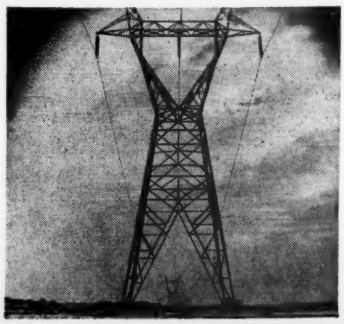

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Subscriptions: Address correspondence to PUBLIC UTILITIES FORTNIGHTLY, circulation department, 332 Pennsylvania Building, Washington 4, D. C. Allow one month for change of address.

Single copies $1.00. Annual subscription price (26 issues a year): United States and possessions, $15.00; Pan American countries, $15.00; Canada, $16.00; all other countries, $17.50.

Entered as second-class matter April 29, 1915, under the Act of March 3, 1879, at the Post Office at Baltimore, Md., December 31, 1936. Copyrighted, 1960, by Public Utilities Reports, Inc. Printed in U. S. A.

Public Utilities FORTNIGHTLY

VOLUME 65 APRIL 28, 1960 NUMBER 9

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Obsolescence *versus* Tax Depreciation for Electric Utilities ..... *C. P. Guercken* 584
Present tax depreciation rates used in measuring lives of electric utility property are inadequate.

Should We Save Urban Transit, and How? ..... *Charles E. Stonier* 602
One of the great problems of our day is recognition of the need for retaining urban transportation.

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PUBLIC UTILITIES REPORTS, INC., PUBLISHERS

Executive, Editorial & Advertising Offices .....332 PENNSYLVANIA BLDG., WASHINGTON 4, D. C.
Publication Office .....CANDLER BUILDING, BALTIMORE 2, MD.

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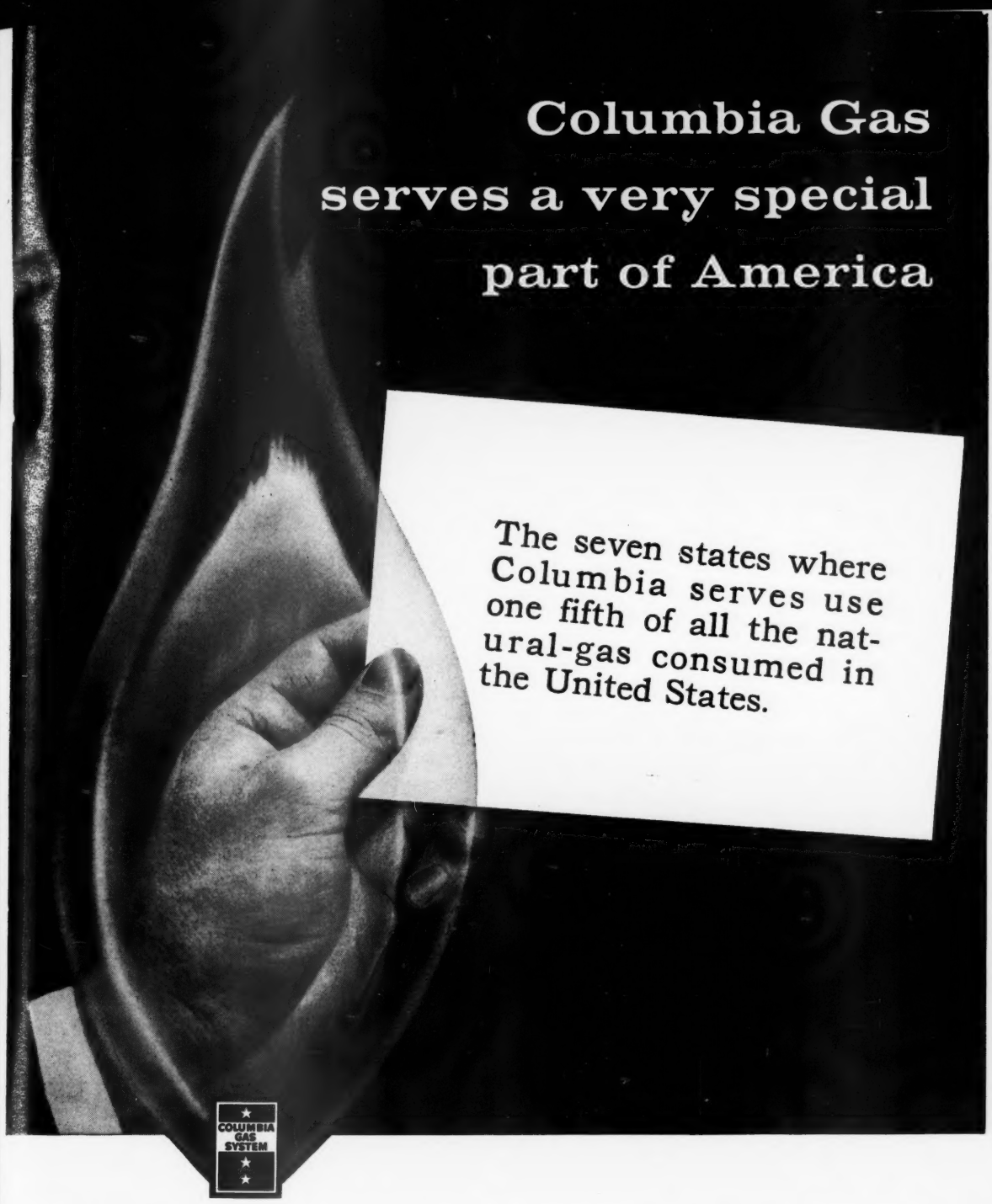
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Pages with the Editors

In this political primary season a good many Americans, young and old, are getting a firsthand illustration of the democratic process. But it is such a variable illustration because the ground rules are so different in the several states. In Wisconsin and California, for example, Democrats and Republicans can vote in each other's primaries as casually as crossing from one side of the street to the other. And after the candidate has been chosen, there is no obligation on the part of the primary voter to follow through in voting for that candidate in the final election. In other states, the party system has been so rigorously insulated against nonconformity that registration and voting are virtually confined to the party faithful.

It is small wonder, therefore, that reaction to primary contests is not unanimous. Former President Truman calls them "eyewash" and bait for meaningless journalistic exploitation. Senator Johnson of Texas points out somewhat cynically that the winner of a Wisconsin presidential primary has never been elected President. This may be sheer coincidence or simply a case of sour grapes, depending on one's point of view.

But the practical exercise of democracy has always been faced with this dilemma of extremes—the watering down in terms of excess popular participation, as contrasted with the manipulation of internal party autocracy. Too much freedom of choice can lead, as in the case of the unsuccessful French Republics, to multiple parties and ineffective blocs. Too much control can lead to dogmatic partisan brainwashing. Only in between this range of extremes can democracy be said to be both practical and representative of the popular choice.

All this is by way of comparing democracy with the modern corporation. It

C. P. GUERCKEN

is not generally realized that the modern business corporation has three distinct yet overlapping aspects of free choice. There is the freedom of the market place in which the consumer votes for the corporation's business by buying the product. There is the choice of the stockholder which can throw existing management out of office, or he can sell his shares to someone else. And there is the freedom of the employee to leave or remain with the given corporate employer.

All three of these phases of corporate operations must be delicately balanced by a duly appointed management which has obligations to each class. And in the case of public utilities there is even a fourth class which must be satisfied if not pleased—the regulatory authority, with its back-seat control over rates, service, security issues, and so forth.

Most people do not think of the business corporation in terms of democracy. Yet it is hard to see how there could be a better example of the free interplay of popular choice in various areas of interests—investment, employment, and, most important of all, the judgment of the market place—the ultimate consumer. Whenever he spends as

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much as a penny for a given product, it is a hard cash vote of confidence to that extent. Whether we know it or like it, this "cash register vote" has meant the difference between success or failure, between life or death for untold multitudes of corporate enterprises since the beginning of our economy.

So, whether we buy a share of stock or take or quit a job, or simply load up the grocery cart at the super market, we are all of us continuously, if unconsciously, voting over and over again in various ways, in the great democracy of private enterprise which has made America what it is today. This is an electorate which may be swayed but never corrupted. It will unerringly act in what it conceives to be its own self-interest, despite all the distracting claims or counterclaims, which is the lifeblood of the competitive system.

THE leading article in this issue suggests the broadening of the private placement approach. It comes to us from WILLARD F. STANLEY, president, Corporate Services, Inc., New York, who thinks that the private placement arrangement should be extended to common stocks of public utilities. He thinks that savings and mutual benefits would be even more extensive than in the case of senior securities. Of course, there are legal and regulatory requirements to be considered. MR. STANLEY outlines the advantages of private placement of shares.

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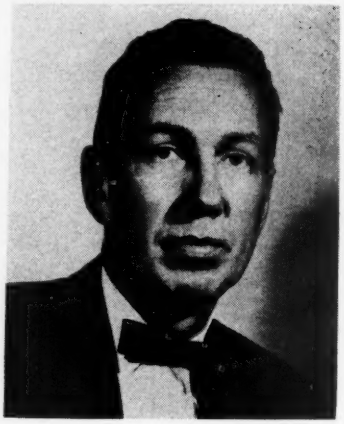
WILLARD F. STANLEY



CHARLES E. STONIER

THE article on the impact of obsolescence on tax depreciation for electric utilities, which begins on page 584, comes to us from C. P. GUERCKEN, assistant to the vice president of Ebasco Services Incorporated. MR. GUERCKEN is a graduate electrical engineer from New York University (BS, '31) who studied economics at the London School of Economics and who started his career with the Edmundson Electricity Corporation, then a subsidiary of Utilities Power & Light Company of Chicago. In 1937 he became associated with The County of London Electric Supply Company, and in 1940 he returned to the United States as budget sponsor with Ebasco Services.

* * * *

CHARLES E. STONIER, whose article entitled "Should We Save Urban Transit, and How?" begins on page 602, was born in Hamburg, Germany, and educated at Syracuse University (BS, '47) and took his Doctor of Philosophy at the University of Pennsylvania ('55). He is now associate professor of economics and marketing at Hofstra College, Hempstead, New York. He is the author of numerous articles in the field of transportation.

THE next number of this magazine will be out May 12th.

The Editors

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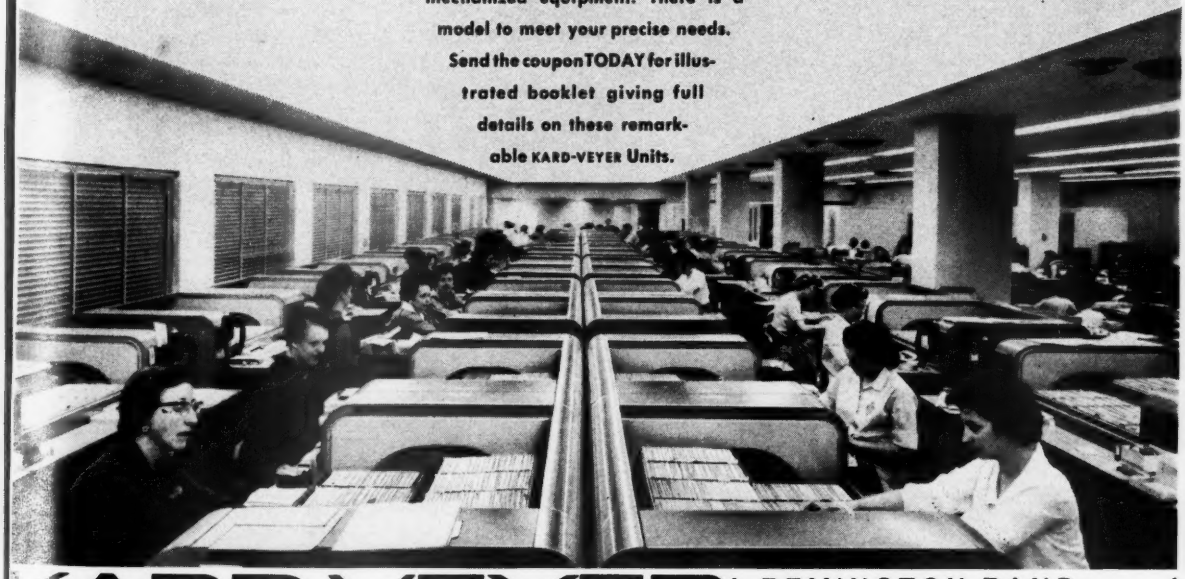

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(May 12, 1960, issue)

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THE RATE-MAKING POWERS OF THE ICC

Oldest of our federal commissions, and older by a quarter of a century than most of our full-powered state commissions, is the Interstate Commerce Commission. The original Interstate Commerce Act of 1887 contained only limited rate-making powers. Gradually these powers were increased and regulation of the interstate carriers became more stringent. Have we now come full circle, in view of the present plight of the railroads, when it will be necessary to relieve them of regulation to some extent? Professor Eric Schenker of the department of economics, University of Wisconsin, thinks that the problem of regulation is one of invalid concept because it is based upon the assumption that the railroads have a monopoly. He makes some suggestions for correcting this regulatory approach.

WHAT'S WRONG WITH COMMISSION REGULATION? PART I.

Stressing the theme of recent criticism of commission regulation as an institution which has been aggravated by House committee investigations, Harry M. Trebing, assistant professor of economics at the University of Nebraska, has given us a two-part objective article which deals bluntly with the question asked in the title. In the first instalment he reviews recent criticisms of commission organization, operation, and procedure. He repeats, with references to the sources, statements made by critics of the commissions in various publications, speeches, and books. In a second instalment Dr. Trebing evaluates these criticisms and gives his own conclusions, which are to the effect that commission regulation has been an outstanding success and that no suggested alternative could approach its performance.

LET'S NOT KILL THE GOOSE THAT LAYS THE GOLDEN EGGS

Despite their cynical postures, the fundamental difficulty of socialist theorists is not a lack of faith but too much faith. Theirs is a sort of mystical conviction in the inherent ability of the human race to work out ideal solutions for the best of all possible worlds and to do this by human resources alone. Dr. John D. Garwood, professor of economics at Fort Hays Kansas State College, Hays, Kansas, is rather intrigued by this somewhat childlike but dogmatic faith in the wisdom of mankind to solve his own problems through socialist theories. Their dedication to such doctrinaire beliefs makes them blind to the fact that the end of their road is slavery and bondage, rather than freedom and well-being. In a bright and entertaining recap of recent socialist pronouncements on what the human race must do to be saved, Dr. Garwood comes up with the age-old conclusion that there is no such thing as a free lunch. His article stresses the danger of permanent injury to the free enterprise system, which has given us "golden eggs" of prosperity and security.

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Remarkable Remarks

"There never was in the world two opinions alike."
—MONTAIGNE

NELSON A. ROCKEFELLER
Governor of New York.

"We live in an age of revolution and explosion: exploding bombs, exploding population, revolutionary wars, revolutionary wants. And in such an age, we have only two choices—no more. We shall learn to be the masters of circumstance. Or we shall be its victims."

MERLE M. ODGERS
President, Bucknell University.

"A university should be a place not where laws are made, but where they are understood; where the rôle of the two-party system of our democracy is appreciated, where students are broadly enough educated to become wise lawmakers and to become worthy candidates for political office."

BARRY GOLDWATER
U. S. Senator from Arizona.

". . . a process of corrosion has set in which has greatly accelerated in the past twenty-five years. The federal authority has been extended and enlarged far beyond the limits originally set in the Constitution. The whole concept of the division of power among federal, state, and local governments has been canceled by a concentration of power in the federal government."

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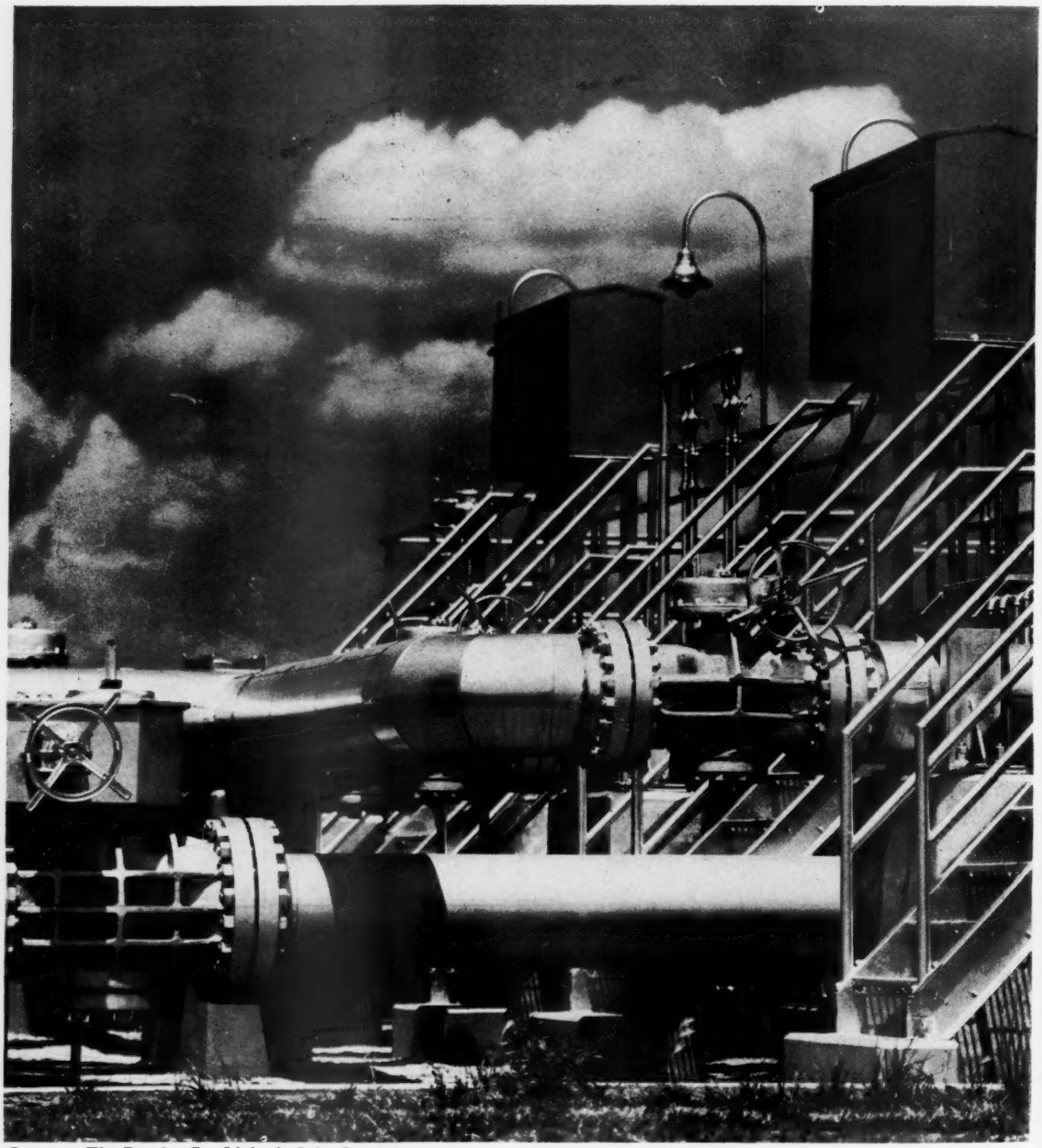
LUDWIG VON MISES
International economist.

"The Socialists have entirely misrepresented the working of the market economy, the system popularly called Capitalism. Capitalism is essentially mass production for the satisfaction of the needs of the masses. While in the precapitalistic ages the processing industries catered almost exclusively to the wants of a minority of well-to-do, modern business serves the much talked about common man. . . . There is no other means for business to prosper and to grow into bigness than to render its products and services accessible to the many. The shops that produce luxury goods for the few remain small or at least medium-size. Thus Capitalism resulted in an unprecedented improvement of the masses' standard of living. . . . The average American wage earner enjoys amenities of which the richest princes and lords of the precapitalistic ages did not even dream."

UTILITIES
A·l·m·a·n·a·c·k

APRIL - MAY

Thursday—28 *Pennsylvania Electric Association, Systems Operation Committee, begins meeting, Bedford, Pa.*	**Friday—29** *Northwest Electric Light and Power Association ends three-day engineering conference, Missoula, Mont.*	**Saturday—30** *Radio Television News Directors Association begins spring board of directors meeting, New York, N. Y.*	**MAY** **Sunday—1** *Chamber of Commerce of the United States begins annual meeting, Washington, D. C.*
Monday—2 *Edison Electric Institute, Prime Movers Committee, begins meeting, New Orleans, La.*	**Tuesday—3** *Wisconsin Utilities Association will hold accounting conference, Delavan, Wis. May 15-17.* ***Advance notice.***	**Wednesday—4** *National Association of Electrical Distributors ends four-day annual convention, Dallas, Tex.*	**Thursday—5** *Indiana Telephone Association ends two-day annual convention, Indianapolis, Ind.*
Friday—6 *American Water Works Association, Pacific Northwest Section, ends three-day annual meeting, Portland, Ore.*	**Saturday—7** *Pacific Coast Electrical Association will hold annual convention, Las Vegas, Nev. May 16-18.* ***Advance notice.***	**Sunday—8** *National Industrial Service Association, Inc., begins annual convention, Miami Beach, Fla.*	**Monday—9** *Institute of Radio Engineers begins symposium, Coronado, Cal.*
Tuesday—10 *American Institute of Electrical Engineers begins farm electrification conference, Omaha, Neb.*	**Wednesday—11** *Wisconsin Telephone Association ends two-day annual convention, Milwaukee, Wis.*	**Thursday—12** *Public Utilities Advertising Association begins annual convention, New York, N. Y.*	**Friday—13** *Edison Electric Institute-American Gas Association end five-day annual conference on operation of public utility motor vehicles, New Orleans, La.*



Courtesy, The Peoples Gas Light & Coke Company

Dehydrating Gas Stored Underground

Located at Herscher station, the principal underground gas storage facility of the Natural Gas Storage Company, this equipment extracts water vapor and other impurities from stored gas before it is sent to the Chicago market.

Public Utilities
FORTNIGHTLY

VOLUME 65 APRIL 28, 1960 NUMBER 9

Why Not Private Placements *for Utility Shares?*

By WILLARD F. STANLEY*

By private placement of blocks of common utility stocks, not only would the cost of such procedure be lowered, but diminution in market price that usually follows announcement of public sales could be avoided. Reduced selling expenses would also make it feasible to issue stocks oftener and in smaller amounts. The many benefits of such a method of raising additional capital seem to merit serious consideration by utility managements.

PRIVATE placement of senior securities of utilities (*i.e.*, bonds, debentures, and preferred stock) has long been an important and successful aspect of utility finance. Private placement, of course, means that the sale arrangements for the entire issue have been negotiated privately with a single purchaser or group of purchasers, so public sale of the security is unnecessary.

But to the writer's knowledge, few if any efforts have been made to apply the private placement method to sales of blocks of additional utility common stock.

Yet, from the standpoint of saving in expenses, there is more reason for private sales of common stock than of senior securities, for the expenses of sale of the former are much higher. While an accurate summation is difficult to arrive at, it seems reasonable to assume there are over 100 electric, gas, and telephone utilities whose operations are sufficiently small to require the periodic public sale of a rela-

*President, Corporate Services, Inc. New York, New York. For additional personal note, see "Pages with the Editors."

tively small amount of additional common stock. Whether the stock is offered to stockholders or sold directly to the investing public, the selling expense bulks large as a percentage of the proceeds of such a small issue. This is primarily because the cost of distributing common stock is a higher per cent of the proceeds than in the case of bonds and other senior securities, but also because many of the expenses of sale (such as preparation of the prospectus—or its equivalent if the issue is below $300,000—as well as printing, legal, and accounting charges) are all not reducible below certain minimum regardless of how small the offering may be.

WHAT would constitute only a moderate percentage for total expenses on the sale of $2 million of additional common stock, becomes burdensome if applied to proceeds of an issue involving only $250,000 to $750,000. And yet a great many of the smaller utilities find that their annual common stock requirement to finance expansion and maintain their common stock equity ratio of capitalization falls within the range of the above figures. At the high dollar side of this range, expenses of sale may run to 6 per cent or 7 per cent over all, while toward the bottom of the range, the percentage can rise drastically to as high as 10 per cent or even more. By far the greater part of these expenses can be eliminated by private placement.

Why has not the private placement technique already been applied widely to sales of small common stock issues? One reason is that many of the logical suppliers of these funds have only developed in a large way in comparatively recent years, while others have not been permitted until fairly recently to buy common stocks.

Who Would Buyers Be?

WHO would be the buyers of these small common stock issues? There are several logical groups:

1. First, and perhaps what may prove the most fruitful field for common stock private placements, are the investment trusts, particularly the "open-end" variety called "mutual funds." While many of the mutual funds have a long history, this industry has come to be one of the major investment media only during the past ten years. "Closed-end" trusts are of longer standing and should also be interesting prospects for private sales of common stock. This latter type of investment trust is seldom inhibited in any way as to the type or amount of securities it may purchase. Open-end mutual funds have a statutory limit prohibiting investment of more than 5 per cent of their assets in securities of any corporation. But most of them have by now grown so large that they could readily absorb within this limit, if desired, as high as a $1 million issue of utility common stock from a single company.

2. Next in line as attractive prospects are the so-called "stock" (as distinguished from "mutual") insurance companies, selling fire, casualty, and life insurance. Normally these companies are not seriously restricted as to the scope of their equity investments.

3. Next in order come the pension trusts, which have developed so rapidly within the past few years. Ordinarily, these aggregations of capital can be expected to have no important restrictions

on the type or amount of their investments in common stock.

4. Mutual life insurance companies (and savings banks in the northeastern states) are limited as to common stock investments to a minor percentage of their accumulated surplus. However, none of the large mutual life insurance companies is understood to have yet invested anywhere near its permitted allotment in this type of security, leaving them free, as a practical matter, to make substantial further common stock investments.

Problems of Private Placements

WHAT are the problems confronting utilities which may embark upon private placement of their common stock? Competitive bidding does not seem likely to be a serious impediment. In those jurisdictions where the utility is subject to a regulatory commission which requires competitive bidding on common stock issues, it seems probable that exemption from the requirement could be obtained for a small issue by a showing of the substantial savings in expense which would be realized by this form of financing.

The matter of listing is of importance. Many of the smaller utilities (including those most likely to profit by use of the private placement device) do not have their stocks listed on any stock exchange, although in most of these cases an active market for the stock is maintained in the unlisted "over-the-counter" market.

TAKING up in order the various types of prospective institutional investor in relation to listing,

(1) There is no listing restriction as to investment companies, although "open-end" mutual funds usually prefer listed securities because, as a matter of routine, it is simpler and easier to make the necessary twice-daily check of market values as to listed stocks in order to arrive at the total asset value of the fund.

(2) "Stock" insurance companies likewise are believed normally to have no legal or policy restrictions on listing of their common stock investments.

(3) The same is probably true of most pension trusts.

(4) Both mutual life insurance companies and savings banks are limited by law to investing in common stocks listed on a national exchange.

Whatever predilection the investment companies, "stock" insurance companies, and pension trusts may have in favor of listed equities may be offset or overcome by the bargain discount they could obtain

Worth Serious Management Consideration

"THE assumed novelty of the proposed new method tends to place it in an exploratory category. Perhaps difficulties presently unforeseen by the writer may develop. But the possibility of avoiding a burdensome percentage of expense, plus the ability to sell small blocks of stock under favorable market conditions without diluting per share earnings, seems to make the proposal worthy of serious exploration by public utility management."

upon purchase of blocks of common stock on private placement, as herein below described.

Analysis of Various Expenses

BEFORE going into the matter of a "discount" in price for common stock sold privately as compared with the normal market price, let us first exhaust the subject of expenses. Those referred to above are solely out-of-pocket expense to which the issuing company is put—either commissions to underwriters or other costs of issuing the securities, such as preparing the prospectus or equivalent document, accounting, legal counsel, preparation of the new securities, etc.

But there is another expense which may fairly be attributed to common stock public offerings. It is more insidious than the others in that it is difficult to exactly determine as to amount. It is represented by the diminution in the price which the company receives upon public sale of its stock, either to stockholders upon subscription rights, or to underwriters for public distribution.

This indirect, but none the less vital, expense is brought about by the market weakness which commonly accompanies an announcement by a company that it intends to issue additional common stock. This weakness is usually based upon the factor of temporary dilution of per share earnings owing to the fact that the funds from sale of the stock cannot be put to work rapidly and profitably. It may be some time before an orderly investment of the new funds may be made in the construction of additional facilities. During this period there is no increase in income to balance the additional number of outstanding shares over which the income must be spread.

MANY utilities, under uniform systems of accounting prescribed by federal and state regulatory commissions, credit income with an item designated "interest during construction." This item customarily includes the assumed cost of the equity funds used in construction prior to completion of the projects. This item is often sufficient to carry or partially offset the cost of the new equity money and thus eliminate the temporary dilution factor. Nevertheless, except under extremely favorable market conditions, which cannot be counted upon to prevail permanently, there has been, historically, a tendency of common stock as to which a new offering has been announced to decline in the market. This reduction in market value operates to reduce, at least to a small degree, the per share price which the company receives upon ultimate sale of the new stock.

This factor of reduction in selling price is absent where a private placement is employed, since there would be no public announcement of the new issue of stock, and, consequently, the market would not be adversely affected. Knowledge of the issuance of the new stock would customarily not become public until after the sale had actually been completed, This is customary procedure upon private placements of senior securities.

Any such diminution in price upon a public stock offering should, therefore, add to the overall expense of the issue in comparing a public offering with a private placement of common stock. This loss to the issuing company by way of diminution of market price is not applicable to public

sales of senior securities and therefore constitutes another reason why private placement is more important to the company in the case of common stock than other types of security.

Other Expense Factors

THEN there is another factor affecting overall expense. If an institution purchased listed shares on the stock exchange, minimum commission would be about one per cent. It seems probable that this commission could be avoided where shares were purchased privately, directly from the issuing company.

Therefore, to the out-of-pocket expense, which may reach a maximum of 10 per cent (or even greater), normally to be expected in a public sale of a small block of additional common stock, can be added estimated reduction in price arising by reason of the announcement of the new issue, plus, on the other side of the ledger, the cost to the institutional investor of investing a like amount of funds in listed securities. While varying widely between companies and under different situations, a 2 per cent decline in market price, following announcement of a new common stock issue, would seem well within the

New Stock Offerings Tend to Drop in Price

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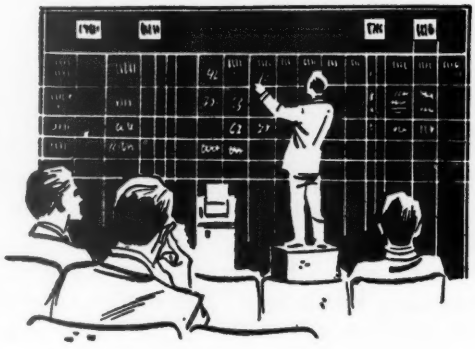


realm of reason as something of a minimum.

Using an assumed 10 per cent of direct expense on a small issue, plus a 2 per cent reduction in market value, and a 1 per cent stock exchange commission, it will be found that the total amounts to 13 per cent of proceeds of sale. With a $500,000 offering, such a percentage would amount to $65,000—a substantial item, both in dollars and as a percentage of the funds raised. While the dollar amount would, of course, be smaller on lesser amounts of new stock, the percentage expense would remain constant or perhaps even increase.

Savings Could Be Split

To make the private purchase attractive to the institutions, this aggregate overall amount of expenses might be split between the two parties, still leaving the company a 6.5 per cent net saving as compared with a public sale—$32,500 on a $500,000 issue. But it might not be necessary for the issuer to offer such a large proportion of the saving in expense to the purchasing institution. Perhaps a net discount from market value of 5 per cent or even less, would be sufficient to attract the institution to make the purchase. This "division of the spoils" would, of course, be the subject of negotiation in each individual case.

Relative Size of Stock Offering Important

One factor does seem of importance in connection with attracting institutional buyers and that is that the proportion of stock being privately sold to the total shares to be outstanding should be small enough to enable the purchaser to dispose of it in the market, when and if desired in the future, without undue delay or sacrifice in price.

In cases where an institution might have doubts as to the ability of the market to absorb rapidly, without price sacrifice, the entire amount of the proposed new issue, the problem might be met by dividing the new issue among several institutions, each taking a part. Such a division would not improve market demand but it would tend to make it more unlikely that the full amount of the new issue would be liquidated at once, it being improbable that all the institutions would wish to liquidate simultaneously. This method could also be used to meet cases where legal or policy restrictions of the interested institutions prevented any one of them from purchasing the entire proposed new stock issue.

Smaller Stock Issues Could Be Made

Private placement of common stocks, if found feasible with institutional investors, can well have another important value to issuing utilities. At present the tendency would logically be to avoid numerous public offerings of small amounts of common stock in order to prevent selling expense from rising to a burdensome percentage of the proceeds raised. To reduce proportionate expense by increasing the size of the issue would raise equity funds beyond the company's needs and thereby dilute per share earnings, perhaps with adverse market repercussions.

On the other hand, to delay issuing common stock in order to await the time when a larger block can be sold and the funds economically used, may result in loss to the issuing company if market conditions should then be unusually favorable and if

thereafter they deteriorate. Under the private placement method, the company would be able to take advantage of favorable market conditions by selling small blocks of stock as the funds were needed without having to consider the factor or prohibitory expense which would be involved in a public offering of a similar amount.

THE assumed novelty of the proposed new method tends to place it in an exploratory category. Perhaps difficulties presently unforeseen by the writer may develop. But the possibility of avoiding a burdensome percentage of expense, plus the ability to sell small blocks of stock under favorable market conditions without diluting per share earnings, seems to make the proposal worthy of serious exploration by public utility management.

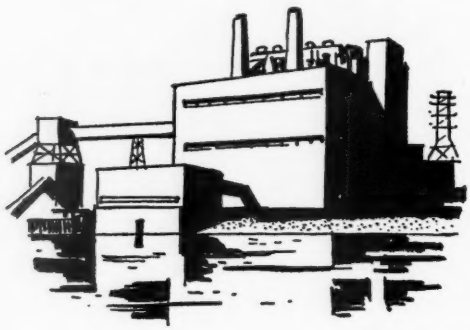
PERHAPS an approach could be made to various institutions, through the EEI or otherwise, to determine and tabulate what types of institutional investor might be interested in purchasing all or parts of new common stock issues under this method. A record might also be obtained of individual institutions in the various categories which were so interested. A company desiring to negotiate a private sale of a forthcoming common stock offering could then circularize the institutions indicating interest in the method, ascertain the institution or institutions indicating interest on the most favorable basis, and then proceed with negotiations covering the specific terms affecting the sale of the new stock.

How Long Will Lake Mead Last?

FLOYD E. DOMINY, U. S. Reclamation Commissioner, directs attention to a statement appearing in the February 18th issue of PUBLIC UTILITIES FORTNIGHTLY to the effect that Lake Mead on the Colorado river behind Hoover dam would be so silted up within twenty-five years as to destroy hydro power production. Mr. Dominy refers to the Geological Survey of 1954, which indicates that "it will be a century before the sediment at the dam reaches the level of the lowest gates in the intake towers, and more than four centuries before the reservoir is filled with sediment to the level of the permanent spillway crest."

Actually, as Mr. Dominy points out, the construction of other storage dams on the river and its tributaries, such as Glen Canyon dam now under way downstream from the Utah-Arizona line, should reduce the sediment inflow to Lake Mead and extend its useful life by many more centuries. It would seem that there is no responsible professional basis for the estimate that Lake Mead's power reservoir potential would be destroyed or even seriously impaired within twenty-five years.

Obsolescence *versus* Tax Depreciation for Electric Utilities



By C. P. GUERCKEN*

The increased rates of growth of electric utilities coupled with technological developments point to need for higher depreciation provisions for tax purposes to compensate investors for the increased business risks in the industry's future.

Foreword

THE Internal Revenue Code provides that the depreciation allowance for each year should be sufficient in the aggregate to recover the cost of depreciable property at the end of its estimated useful life. Among the factors to be considered in determining such life expectancy are the progress of the art, economic changes, inventions, and current developments within the industry and the taxpayer's trade or business.

The emphasis placed on the determination of composite tax depreciation rates, based on the assumption that the past retirement history is the measure or indication of a future course of the private utility industry, places entirely too much weight on past history and does not make adequate allowance for present and probable future developments. The tremendous increase in the current rate of growth in the utility industry from before and after World War II, both in capacity and investment, accompanied by the radical changes in technology, will hasten inadequacy of existing property. The shortened average service lives will make the record of past retirements much less significant in setting the sights for present and future tax depreciation determinations.

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OBSOLESCENCE *VERSUS* TAX DEPRECIATION FOR ELECTRIC UTILITIES

DEPRECIATION for tax purposes is computed formally in accordance with tax laws and regulations as interpreted by the Internal Revenue Service and the courts in order to determine a statutory deduction in measuring net income subject to tax. Accounting provisions for depreciation in the case of utilities, on the other hand, represent essentially one factor of operating costs computed in accordance with a different set of rules and regulations promulgated by either state or federal regulatory bodies. There is no identity of requirements with respect to depreciation computations as between the tax laws on the one hand and the regulations of the regulatory bodies on the other. In fact there is bound to be a distinction due to different sets of circumstances, and there should be no implication that one method is correct and the other incorrect.

The amount of depreciation taken belongs in the realm of top corporate policy. While age-life studies are an important item in management's decision to use a certain rate of depreciation, such decision cannot be made without an awareness of the economic and regulatory climate in which the utility operates.

The following is a summary of industry conditions and developments relevant to the determination of an adequate depreciation allowance:

Production

ELECTRIC utility industry more than doubled its generating capacity from 1949 to 1958. Corresponding growth will be maintained for at least twenty years.

Tremendous growth in demand for power requires much larger machines. The improved overall operating efficiencies attained with these new machines will shorten useful lives of smaller inefficient machines installed prior to 1948.

Changes in peaking requirements from one to two peak seasons will accelerate retirement of small, marginal equipment due to changing economies of operation.

Property retirements since 1952 have increased substantially over the period prior to 1952 and will continue to increase materially over the next ten years.

Inflationary trend will increase operating and extraordinary repair costs of older and less efficient equipment, more than newer efficient automated equipment, and consequently will shorten its useful life.

INFLATION does not affect average capital cost per kilowatt of steam capacity to the same extent as it affects operating costs, primarily because of the larger size units. Thus, pressure will mount to retire older machines with high operating costs and construct larger and more efficient ones at no greater cost per kilowatt.

Increases in land values and ad valorem taxes and scarcity of plant sites will spur retirement of older machines and replacement by larger and more efficient machines.

Automation of power plants will increase efficiency and reduce operating costs, thus shortening the life of smaller manually operated plants not readily adapted for automation.

Development of nuclear power, fuel cells, and other new technological advances in power generation pose an increasing threat of obsolescence that will shorten life of existing equipment.

Transmission

INCREASED costs of rights of way will make it necessary to rebuild lines to higher voltages rather than extending circuit miles, thus shortening the lives of older transmission equipment.

Development of super high-voltage systems will permit greater shifting of loads between adjacent systems and force retirement of older generating units including those used for peaking purposes.

Relocation of transmission lines due to multibillion-dollar highway program will increase materially the rate of retirements.

Distribution

AVERAGE residential use of electricity has increased from 1,563 kilowatt-hours in 1948 to 3,366 kilowatt-hours in 1958. Current projections indicate that use of power per residential customer will at least double the 1958 rate in the next decade.

Increased consumption of power will require replacement of existing transformers and other distribution equipment, and possibly higher distribution voltage.

Placing distribution lines underground in residential communities will shorten life of overhead lines and equipment.

Growth of Generating Capacity of Electric Utility Industry

Two distinct and radically different trends can be observed in the growth of total generating capacity. From 1922 to 1948 installed capacity increased 42.4 million kilowatts from 14.2 million to 56.6 million kilowatts. In the nine-year period of 1949 to 1958 the industry more than doubled its capacity from 63 million kilowatts to 142 million kilowatts. In terms of annual percentage growth, the accompanying chart shows two distinct trends — from 1922 to 1948, and from 1949 to 1958. The industry's capacity grew at an annual compound rate of 4.75 per cent per annum from 1922 to 1948, but from 1949 to 1958 this already substantial growth increased to an unprecedented 9.13 per cent compounded. This definite break is shown in Chart A, page 588. A similar Chart B, page 588, shows the growth and trend in steam-generating capacity.

The annual projections of the EEI,

Classic Example of Accelerated Obsolescence

"ECONOMIC obsolescence has happened in other industries such as, for example, the railroads, when in 1934 the Burlington and Union Pacific railroads ran their first diesel electric trains. In that same year, looking back into the history of locomotive retirements, and using all of the then known statistical and actuarial techniques, an informed individual could firmly say that a steam locomotive built in 1934 would still be on the road in 1964. However, ten years later it was clear that the steam locomotive was on its way out. Even engines bought in that year were scrapped two or three years later, because the diesel with its economies introduced a factor of extraordinary obsolescence, which put the steam locomotive in the museum of transportation history. The fact is that few people realized that a major breakthrough had taken place when the railroads purchased their first diesel."

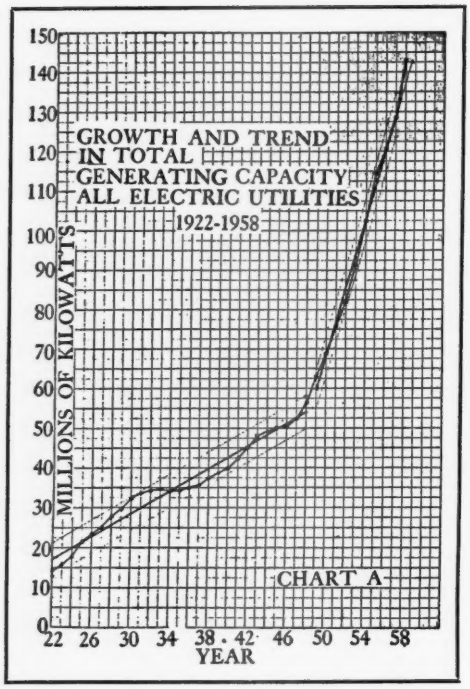
Ebasco, and other authorities show conclusively that this growth will be maintained for at least twenty years. There are, therefore, two distinct periods of growth which must be considered—the rate before 1948 and the rate subsequent to that period—and to that extent the future economy of the industry bears little relationship whatever to the earlier, pre-1948 period. In the first of the two periods the average annual capacity additions amounted to 4.65 million kilowatts, while in the subsequent period ending in 1958 these additions jumped to 9.61 million kilowatts per annum, or an increase of 106 per cent. It should be noted that the projected annual increases through 1965 amount to 13.37 million kilowatts of capacity, or an amount which is slightly less than the total installed capacity at the end of 1922. All this will tend to increase the rate of retirements and consequently the need for higher depreciation rates.

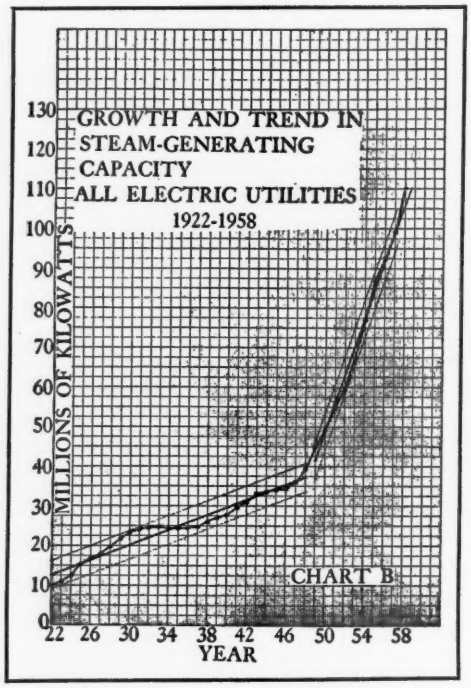
Growth of Machine Sizes

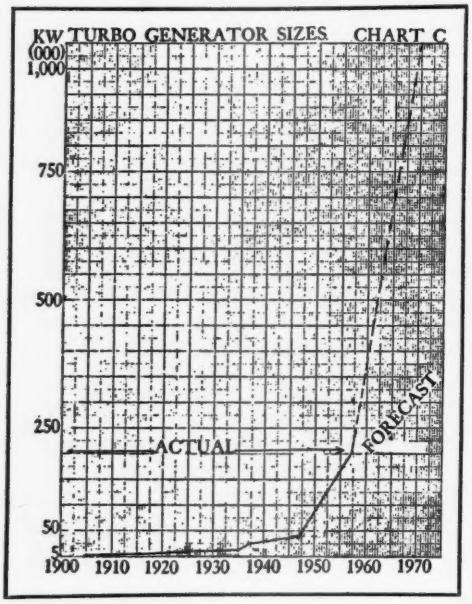
THESE tremendous rates of growth have been accompanied by even larger increases in the average size of machine installed. Prior to 1947 steam turbine generators were not only very small, but the rate of their growth in size was extremely slow. According to the FPC the capacity of the average size machine of the mid-twenties was only 11,293 kilowatts. By the mid-thirties it had increased only to 13,185 kilowatts, or an increase of only 17 per cent.

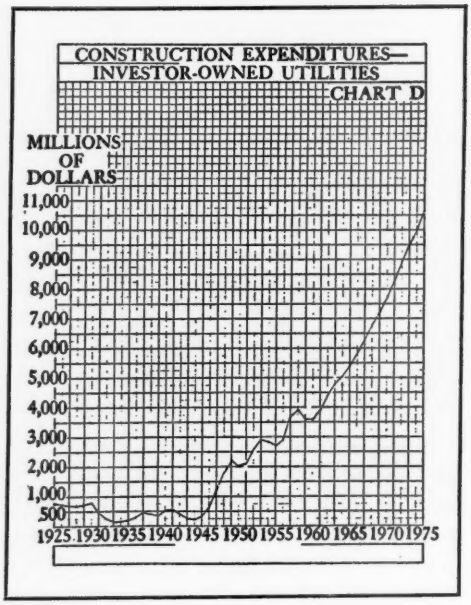
The foregoing data relate to average size of machines installed, since there is no other industry information subsequent to 1941. With respect to machines installed in any particular year, to give a better indication of the progress of technology and of the growth of machine sizes, it should be noted that in 1937 the average size of machine purchased by Ebasco clients had a capacity of 20 milliwatts. By 1947 the average size of machine had doubled to 40 milliwatts. Had machine sizes continued to increase as they did in the earlier decade, they would have gone up only from a minimum of 60 milliwatts to a maximum of 80 milliwatts. However, due to the growth in needs of electric utilities as well as the progress of technology, the average size machine in 1957 had a capacity of 200 milliwatts, five times the size of machines sold in 1947. Currently, the predictions are that in another decade machine sizes will increase again to the same degree as from 1947 to 1957, and manufacturers will be able to supply cross compound units of 1,000 milliwatts or more. This size of machine is not unreasonably large and may even be on the conservative side, as evidenced by the recent bid by Westinghouse to TVA which indicated that this manufacturer was prepared to build a cross compound machine of 800 milliwatts and tandem compound machines of 500 milliwatts.

IT is of interest to note that the EEI's *Semi-Annual Electric Power Survey* shows that as of April 1, 1959, only 8.7 per cent of machines on order were under 100 milliwatts in size, while machines from 150 milliwatts to 250 milliwatts totaled 42.3 per cent of total capacity. It is significant that over 26 per cent of total capacity was for machines of 300 milliwatts to 400 milliwatts capacity. The dramatic growth of machine sizes is illustrated on Chart C, page 588.


GROWTH AND TREND IN TOTAL GENERATING CAPACITY ALL ELECTRIC UTILITIES
1922-1958
MILLIONS OF KILOWATTS
YEAR
CHART A


GROWTH AND TREND IN STEAM-GENERATING CAPACITY ALL ELECTRIC UTILITIES
1922-1958
MILLIONS OF KILOWATTS
YEAR
CHART B


KW TURBO GENERATOR SIZES (000)
CHART C
ACTUAL
FORECAST


CONSTRUCTION EXPENDITURES— INVESTOR-OWNED UTILITIES
CHART D
MILLIONS OF DOLLARS

The tremendous growth in machine sizes, both present and projected, along with other factors mentioned herein, will tend to shorten the useful life of existing machines built prior to 1947. The average size of the machines of the mid-sixties will be anything from ten to twelve times the size of the machines built in 1947, and will operate at thermal efficiencies undreamed of then. For the industry as a whole, in the mid-forties it took 16,000 Btu to generate one net kilowatt-hour. By 1960 the thermal efficiency will have increased to 10,800 Btu per net kilowatt-hour generated, while the most efficient plants will have a heat rate of 8,000 Btu per net kilowatt-hour, less than one-half that of the earlier decade. Both the growth in size and the unprecedented increase in thermal efficiencies and economy of maintenance will inevitably tend to shorten the useful lives of the smaller, less efficient machines.

Growth of Maximum Demands

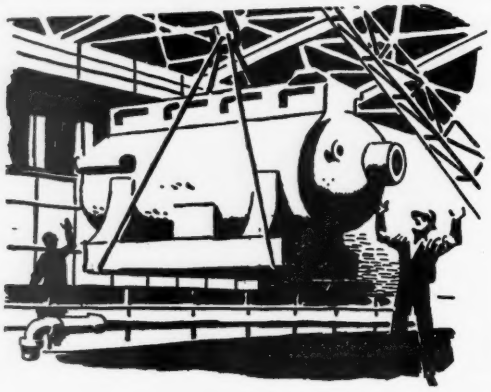
THE foregoing increases in capacity have, of course, been the result of a continually expanding market for electric power. While in the seventeen years from 1922 through 1939 peak loads increased 180 per cent, the increase from 1940 to 1957 was 260 per cent. Considering the fact that in the first period the utility industry was by present standards in its infant stage, the subsequent rates of increase were indeed phenomenal. However, great as this has been, the future in which the industry will achieve substantial maturity indicates equally promising developments. The estimate by *Electrical World* from 1958 to 1975 shows an increase of 242 per cent, or 7.5 per cent compounded per annum, or far greater than the rates of growth in the twenties and thirties.

Another indication has been the fact that from 1922 to 1948, which is the breaking point on Chart A, the average annual increase in peak load amounted to 1.67 million kilowatts. In the period from 1949 through 1958 this accelerated to 6.40 million kilowatts per annum, an increase of 282 per cent. It is significant to note that the estimated increase in peak load of 1959 over 1958 of 12.1 million kilowatts is nearly two million greater than the total demand in 1922. The prime significance of this growth is that these ever-increasing increments of load which the systems will have to handle every year will require bigger and bigger machines. They will significantly shorten the useful life of machines installed prior to 1948.

Developments in Peak Loads and Peaking Capabilities

ANOTHER development which is occurring and which will have a material bearing on the useful lives of even fairly recently installed machines is the change in the shape of the annual load curve. According to the twenty-fifth *Annual Power Survey* issued by the EEI, by 1961 summer peak loads will equal the peak loads for the following December. The significance of this is that, on the average, peaking units which have to date run once a year for, say, 100 hours per year will now have to run twice a year and thus change the relative cost economies of this marginal peaking equipment. While machines may have been just marginal for 100 hours' operation per annum,

Technological Breakthroughs Will Affect Depreciation



"A MAJOR breakthrough in the application of computers for the completely automatic operation of steam electric stations has now taken place. One of the factors that had previously held up such automation was the lack of reliability in the operation of vacuum tubes in computers. However, the development of reliable transistorized computers has now put the utility industry in a position where it can avail itself of completely automatic operation. . . . Development of nuclear power appears to be on the threshold of a major breakthrough. While currently there is only one plant (Shippingport) of 100-milliwatt capacity in commercial operation, the estimated rate of growth indicated by equipment manufacturers is so rapid that by 1975 over 25 per cent of the capacity installed in that year will be in the form of nuclear power. There has been generally a tendency to underestimate the rate of growth in the development of atomic energy on the grounds that conventional fuels are cheap and in addition progress is still continuing in the improvement of efficiency of conventional plants."

running them twice a year, or 200 hours per year, will result in increased operation and maintenance costs which are likely to destroy the margin formerly existing over new machines of improved overall operating efficiency.

Incremental or peaking capacity can be built into new large units to provide peaking capability at low incremental cost. This development will shorten the useful lives of smaller inefficient machines installed prior to 1948 which would historically have served out the remainder of their lives as peaking machines.

Changes in peaking requirements from one to two peak seasons will further enhance the value of these incremental capacity units. These new machines would be base loaded at normal rating prior to the time of system peaks and their additional capacity can be obtained instantaneously for peaking. The older machines would require warm-up time before they would be available for developing power.

Hence their value to the systems would decrease and their retirement would be hastened.

Analysis of Present and Future Retirements

AN analysis of retirement data for the industry as a whole is limited not only by lack of good statistics, but also by the fact that such figures as there are date back only to 1946, at least as far as capacity is concerned. In the tabulation shown below are the new steam additions and retirements in milliwatts from data supplied by the Federal Power Commission:

NEW STEAM ADDITIONS AND RETIREMENTS IN MILLIWATTS

	Year	*Additions*	*Retirements*	*Per Cent Retirements of Additions*
	1958	10,818	449	4.15
	1957	6,649	301	4.53
	1956	5,421	307	5.67
	1955	10,383	587	5.65
	1954	10,287	450	4.38
	1953	7,803	221	2.83
	1952	4,892	142	2.90
	1951	5,670	176	3.10
	1950	4,693	129	2.75
	1949	5,356	108	2.02
	1948	3,197	71	2.22
	1947	1,835	144	7.85
	1946	300	109	36.33
Ave.	1952–58	8,280	367	4.43
"	1946–52	3,620	124	3.44
"	1952–58			
Inc.	1946–52	129%	196%	28.78

Since this is all the data available, the mid-point was taken as 1952 in order to divide the series into two parts for comparison. It is significant that while capacity additions increased 129 per cent, retirements in the latter period increased 196 per cent, or a relative gain of over one and one-half times. Per cent retirements of additions also showed a substantial rate of acceleration. While the earlier period showed per cent retirements of additions of 3.44 per cent, the 1952-58 period showed 4.43 per cent, or a relative increase of 1.29 times. While the increase in retirements is already substantial, it is necessary to look into the immediate future for a major acceleration in the rate of plant retirements.

Another ratio of considerable importance is the relationship of the average retirements to the average installed steam capacity in the above two periods. The average for the 1952-58 period was .302 per cent, while in the 1946-52 period it was .191 per cent. This indicates that there was an increase in the rate of retirement of 58 per cent in the later over the earlier period.

Because of the installation of the machine sizes previously mentioned, it is clear that the rate of retirement over the next ten years will be materially greater than it has been in the immediate past.

Effect of Inflation on Future Course of Retirements

CREEPING inflation, wherein the value of the dollar has eroded at the rate of 3 per cent to 4 per cent per annum, has now become a part of the national economic picture in spite of periods of temporary price stability. Thus labor, fuel, materials, and supplies will all continue to increase in unit price and will thus have a material bearing on the useful lives of older equipment where the economies of automation and other increments in overall operating efficiency cannot be economically achieved.

It should be clearly understood that many older stations are marginal by na-

ture. Hence even a small increase in the cost of fuel, maintenance, materials, and supplies, or labor, will put them at an economic disadvantage, possibly even for peaking purposes.

A large number of long-term gas contracts entered into some years ago are currently expiring. Today, new contracts for large-volume, long-term supply of gas are being priced over 20 cents in the Southwest, and all contracts include escalation which generally provides that, over a ten-year period, the cost of gas will be up as much as 50 per cent. It is reasonable to expect that the price of coal, oil, and gas will keep pace with the general trend of prices.

Even where peaking operation of older plants is so short in duration as to eliminate fuel cost and thermal efficiency as controlling factors in the marginal economics, the spiraling cost of labor for operation and maintenance of the older units will destroy the margin in overall operating efficiency over that of a new unit.

WHILE operating costs have been inflated substantially and will continue, capital investments per kilowatt of steam capacity additions either will remain constant or decline. The reason for this is simple. The progress of technology, improvement in manufacturing methods, and, more important, the tremendous increase in size of machines, mentioned previously, have in many instances offset inflationary pressures prevalent today. Thus the question does not arise of replacing a machine costing $125 per kilowatt with one costing say $175 or $200 per kilowatt. With inflation being primarily confined to the cost of operations rather than to capital cost per kilowatt, pressure will mount to retire the older machines.

Analysis of Charges to the Depreciation Reserve

THE following study, while based on the book reserve of the electric utility industry, may have a similar pattern with respect to the accounting charges which have taken place in the industry's tax reserve.

Analysis of FPC statistics regarding charges to the depreciation reserve during the last twenty years was made in two periods, one from 1938 to 1947, and another one from 1948 to 1957. Essentially

Big Increase Shown in Annual Retirement Rate

"BECAUSE of the increasing rate of technological progress and the prospects of a decrease in useful life taking place in the near future, the utility industry should have tax depreciation allowances sufficient to create tax reserves to retire some of the high cost of property installed in the 1949 through 1958 period. Recent statistical studies by the tax department of Ebasco Services indicate that a substantial increase in the annual rate of retirements to plant has taken place during the explosive growth of the past ten years. Comparing the ten-year band ending in 1958 with the 20-year period ending in 1947 indicates an average increase of 50 per cent in the rate of retirements."

this study consisted of adding to the reserve at the beginning of the year the reserve accruals of the current year and deducting from it the reserve balance as of the end of the year.

The data show that while the average net charges to the reserve in the earlier period amounted to $120 million per annum, charges to the reserve from 1948 through 1957 increased to $223,618,000 per annum, or a gain of 86 per cent. It should be clearly understood at this point that any per cent relationship between retirements in any particular year and the gross plant at the end of that year will be substantially distorted because, while the dollar retirements are in the "hard" dollars of twenty or twenty-five years ago, the gross plant figure has been materially inflated by the "soft" dollars of the additions made in the past ten years.

To make a comparable analysis it is necessary to equate both the retirements and additions to plant on a constant dollar basis. An approximation of this was attempted in the present study by assuming that all retirements that were made were of dollars of a 1925 vintage and similarly all the additions to plant from 1937 to 1957 were adjusted to dollars of 1925 purchasing power.

The ratio of net charges to reserve to gross plant (additions based on constant 1925 dollars) was .76 per cent for the first decade and .96 per cent for the second decade. This is a substantial increase, and in view of the projected future retirements an increase to at least 1.5 per cent or 1.75 per cent may be expected from 1958 through 1967.

In any analysis of the future course of retirements and reserve requirements consideration must be given to the economic implications of the accelerated ratio of expenditures in the private electric utility industry. Thus, in the decade from 1929 through 1938 the total expenditures amounted to approximately $400 million a year. In the following decade annual construction expenditures increased to $645 million a year, or a gain of 62 per cent, which, while substantial, has been dwarfed by the expenditures made from 1949 through 1958 when the average increased to $2.78 billion annually, or a gain over the preceding ten years of 330 per cent. In this connection it is of interest to note that the 1958 construction expenditures of $3.76 billion nearly equaled the total construction expenditures of the decade from 1929 through 1938.

In respect to the future construction requirements, estimates for the period 1959 through 1968 indicate total requirements of nearly $5 billion per annum, an increase of 79 per cent over and above the expenditures of 1947 through 1959.

Because of the increasing rate of technological progress and the prospects of a decrease in useful life taking place in the near future, the utility industry should have tax depreciation allowances sufficient to create tax reserves to retire some of the high cost of property installed in the 1949 through 1958 period.

Recent statistical studies by the tax department of Ebasco Services indicate that a substantial increase in the annual rate of retirements to plant has taken place during the explosive growth of the past ten years. Comparing the ten year-band ending in 1958 with the 20-year

period ending in 1947 indicates an average increase of 50 per cent in the rate of retirements.

Details of the construction expenditures from 1925 through 1975 are shown in Chart D, page 588.

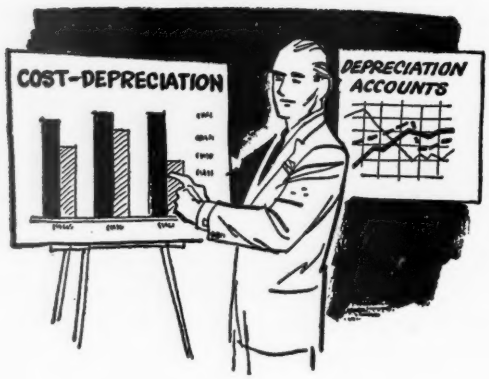
Effect of Land Values on Retirement Policies

THE increase in price of land due to future shortages of central station sites which may be expected will have a material bearing in increasing the rate of retirements of smaller and less efficient machines installed prior to 1947. The effect of increasing land values has been particularly noticeable in metropolitan areas, where not only have such values gone up but there is a shortage of sites for the construction of new plants.

A similar pattern is discerned in other areas where electric utilities have had to retire smaller machines in order to make space available for turbogenerators four

Strong Reasons for Higher Depreciation Rates

"THE annual projections of the EEI, Ebasco, and other authorities show conclusively that this growth [4.75 per cent annually from 1922 to 1948; 9.13 per cent annually from 1949 to 1958] will be maintained for at least twenty years. There are, therefore, two distinct periods of growth which must be considered—the rate before 1948 and the rate subsequent to that period—and to that extent the future economy of the industry bears little relationship whatever to the earlier, pre-1948 period. In the first of the two periods the average annual capacity additions amounted to 4.65 million kilowatts, while in the subsequent period ending in 1958 these additions jumped to 9.61 million kilowatts per annum, or an increase of 106 per cent. It should be noted that the projected annual increases through 1965 amount to 13.37 million kilowatts of capacity, or an amount which is slightly less than the total installed capacity at the end of 1922. All this will tend to increase the rate of retirements and consequently the need for higher depreciation rates."



or five times the capacity of the smaller machines. While the actual statistics for land values are meager and cost of industrial land sites unavailable, an indication of the increase in all farm lands plus buildings is contained in the following tabulation:

	Incr. November, 1958, Over 1939
South Atlantic	207%
East South Central	204%
West South Central ..	126%
Overall United States ..	140%

THE price of land is certain to rise, first because of the progress of inflation and second because of increasing pressures arising from an explosive population growth. The existing sites, therefore, can be better utilized by scrapping small, inefficient machines and installing larger and more efficient units. The same situation applies to availability of central station sites without any consideration of the cost of land as such.

The increase in cost of land will also have a material effect on transmission retirements since rights of way are becoming progressively more expensive, with the result that existing low-voltage lines have been taken down and towers capable of carrying several high-voltage circuits have been erected in their place. This has been true in Connecticut, California, and several other places.

Effect of Ad Valorem Taxes on Retirement Policies

THE continuing growth of local and ad valorem taxes will have a material bearing on the future retirement policies of utilities. There is greater likelihood of smaller and less efficient machines being taken out of existing plants and large new machines installed in their place rather than utilities acquiring new sites and constructing new power plants with their attendant higher tax assessments. Such taxes will increase since the continuing growth of population requires new schools, roads, and other services performed by the state and its political subdivisions.

While in 1948 state and local taxes amounted to $9.96 per customer for the industry as a whole, by 1958 this had increased to $18.25, or a gain of 83 per cent. Comparable gain may be anticipated during the next decade.

Effect of Automation on Retirements

A MAJOR breakthrough in the application of computers for the completely automatic operation of steam electric stations has now taken place. One of the factors that had previously held up such automation was the lack of reliability in the operation of vacuum tubes in computers. However, the development of reliable transistorized computers has now put the utility industry in a position where it can avail itself of completely automatic operation.

To date, the application of computers has been in the gathering, recording, and evaluation of data from the various parts of the system, and then making such data available to system dispatchers. They in turn would give the appropriate orders to the operators of the steam electric stations.

The reliability of transistorized computers is such, however, that in addition to the foregoing gathering and analysis of the data received, the computer

will, on the basis of such information, automatically start the proper machines to synchronize them with the rest of the system, optimize operation, and then automatically shut the station down either because of a fault or because of a change in the condition of the system load.

There are three parallel forces behind the development of automation. The first one is to protect investment, which could amount anywhere from $24 million to perhaps $40 million for a single machine, from the possibility of human failure. Secondly, there is the necessity to operate machines at their optimum efficiency under varying conditions of load, and, thirdly, the need to reduce operating costs.

THE Little Gypsy station of Louisiana Power & Light Company will be the first example of a completely automatic operation. The first unit will go into operation in 1961 to be followed by subsequent units to bring the total capacity up to 2,000 milliwatts. In addition to the foregoing station, which will be gas-fired, Carolina Power & Light will build a fully automated coal-fired station. On the West coast, Southern California Edison has announced that it will construct an automatic plant both for oil and gas firing. The increasing scale of operations of utility systems and the rates of growth in demand will be such as to force the need for automation, and this in turn will tend to shorten the useful life of the small, manually operated plants. Generally, existing machines cannot be converted to computer operation because of the prohibitive economic costs.

New Means of Future Power Production

DEVELOPMENT of nuclear power appears to be on the threshold of a major breakthrough. While currently there is only one plant (Shippingport) of 100-milliwatt capacity in commercial operation, the estimated rate of growth indicated by equipment manufacturers is so rapid that by 1975 over 25 per cent of the capacity installed in that year will be in the form of nuclear power. There has been generally a tendency to underestimate the growth in the development of atomic energy on the grounds that conventional fuels are cheap and in addition

Capital Costs Per Kilowatt Resist Inflation

"WHILE operating costs have been inflated substantially and will continue, capital investments per kilowatt of steam capacity additions either will remain constant or decline. The reason for this is simple. The progress of technology, improvement in manufacturing methods, and, more important, the tremendous increase in size of machines, mentioned previously, have in many instances offset inflationary pressures prevalent today. Thus the question does not arise of replacing a machine costing $125 per kilowatt with one costing say $175 or $200 per kilowatt. With inflation being primarily confined to the cost of operations rather than to capital cost per kilowatt, pressure will mount to retire the older machines."

progress is still continuing in the improvement of efficiency of conventional plants. Because of that, the argument runs, nuclear power will play only a minor rôle as far as the possibility of the complete replacement of existing plant is concerned, due to the normal practice of "downgrading" machines. However, as previously noted, the big conventional machines of this era will not lend themselves to peaking purposes without prohibitive expense. Furthermore, as far as cost is concerned, power production from nuclear plants is expected to decline in cost with great rapidity.

In a speech by W. L. Budge, marketing manager, atomic power department of the Westinghouse Electric Corporation, on the "progress of commercial power," delivered September 15, 1958, it was estimated that by 1970 power production costs for nuclear power will equal average conventional station costs. By 1975, such costs will be substantially below conventional power production costs, and it would appear that by 1985 atomic power will become competitive even in low-cost areas. Later studies by the industry indicate that nuclear power will compete favorably with conventional fuels in high-cost areas by 1968 or before.

THE direct conversion of heat into electric energy should also not be discounted as far as the future is concerned. The old thermocouple concept, wherein two dissimilar pieces of metal were heated by a gas flame with a resultant flow of electric current, has been revived both by Westinghouse and other manufacturers. The advent of atomic heat and of new metals has been such as to constitute a major breakthrough for competitive sources of power. Westinghouse recently stated that it now has a machine which will be capable of producing enough power for an average room.

In this connection, the recent AEC's development of a small reactor to convert heat directly into electric energy is of interest. While the AEC was careful to point out that this device was in the early stages of development, no one could preclude the eventual elimination of boilers, turbines, and generators from central stations. In fact it is not inconceivable that the future trend may be reversed, and that instead of distributing energy from a central point, each house or industrial plant would have its own small atomic pile to produce its power requirements. Such a development would tend to render existing facilities in the electric utility industry obsolete.

In addition to the above thermocouple principle of direct conversion of heat into electricity, the General Electric Company has announced a device in which the interaction of hydrogen, oxygen, and water produces electric power.

AN independent appraisal of the fuel cell situation was contained in an article entitled "New Family of Power Producers" in the June 27, 1959, issue of *Business Week*.

It said in part:

> *High Potential*—In theory, a fuel cell package can be built in almost any size and power-generating capacity. If more power is needed, two or more cells can be hooked up in series.

Versatility of the fuel cells appeals to scientists. They can select cells for various purposes, can use them singly or in batteries to produce any volume of power from microwatts to megawatts over various time spans and for various voltages and currents.

Designers will still have to compromise, for they can't yet get all the advantages of one type of cell, and power and efficiency will have to be balanced against other considerations, such as low-temperature operation, small size, long life span, cost of raw materials, need for fuel storage equipment.

As a family of power producers, though, fuel cells offer many benefits:

A minimum of maintenance and care, thanks to the elimination of most or all moving parts.

Greater efficiency, in the area from 60 per cent to 80 per cent, compared with not much over 40 per cent for conventional power generators using heat and machinery.

Simplicity of design, since a fuel cell doesn't produce the wastes of a combustion reaction — heat, smoke, and noise.

Last week, Yale & Towne's President Gilbert W. Chapman predicted that a fuel cell breakthrough would soon completely transform the business of transportation. With such a prospect, no company even remotely related to the field of power generation can afford to ignore the fuel cell.

THE foregoing evaluation with respect to competitive sources of energy which face the owners of conventional plants is far removed from any wild flights of fancy into the land of "Never-Never." Economic obsolescence has happened in other industries such as, for example, the railroads, when in 1934 the Burlington and Union Pacific railroads ran their first diesel electric trains. In that same year, looking back into the history of locomotive retirements, and using all of the then known statistical and actuarial techniques, an informed individual could firmly say that a steam locomotive built in 1934 would still be on the road in 1964.

However, ten years later it was clear that the steam locomotive was on its way out. Even engines bought in that year were scrapped two or three years later, because the diesel with its economies introduced a factor of extraordinary obsolescence, which put the steam locomotive in the museum of transportation history. The fact is that few people realized that a major breakthrough had taken place when the railroads purchased their first diesel. In this connection there was no "downgrading" of steam locomotives from passenger, to freight, to yard service. The steam locomotive went out without any of the intermediate steps that up to now had characterized the electric

utility industry. It is believed that a similar technological revolution is taking place in the utility industry which will shorten the useful life of existing property as effectively as that which has taken place on the railroads.

Trend in High-voltage Transmission

A RECENT study prepared by a leading manufacturer indicates that substantial retirements may be expected in the 23-kilovolt and 34.5-kilovolt transmission lines. The major growth will be in the 138-kilovolt and 230-kilovolt circuits. However, over all the per cent rate of growth in circuit miles will be substantially below the estimated growth in load. A particular study made by Westinghouse is worthy of a quote as an indication of its thinking of the future course in the development of transmission voltages. The memorandum says in part:

> For some time now we have sensed a growing rate of obsolescence in the utility transmission systems . . . Because of the disparate rates of increase, between costs of right of way and costs of equipment, it is ultimately less costly to rebuild lines to higher voltages, or conductor sizes, or both, than to extend circuit miles. We believe that investigation would disclose numerous examples, in which lines built since the end of the war have been rebuilt recently . . . usually at about twice the original voltage. It might be argued that the original equipment—such as transformers—is ultimately used elsewhere in the system. We believe that to be true only to a limited degree, because of the inability to match secondary voltages, etc. Beyond doubt, the greater part of the original equipment is scrapped.

An interesting example of the type of reconstruction mentioned above was by Connecticut Light & Power, where a medium voltage line was converted to high voltage in the same right of way because of the difficulties and cost involved in acquiring right of way specifically for a new high-voltage line.

An important corollary in the development of super high-voltage transmission will be the ability to shift on an economic basis substantial loads between systems on a greater scale than heretofore. Such development is bound to have an effect on the use and operation of older units and it is reasonable to expect that further system interconnection with higher voltages over greater distances could have important bearing in the determination of future retirement policies.

Retirements of Distribution Property

IN 1948 the average residential use amounted to 1,563 kilowatt-hours, while by 1958 consumption had increased to 3,366 kilowatt-hours, or an increase of 116 per cent. Current projections indicate that consumption per residential customer will at least double in the next decade. Such future increases in load will undoubtedly accelerate the current rate of retirements. Four kilovolt primaries will have to be changed to 13 kilovolt or 24 kilovolt or even higher voltages, with the result that existing poles, crossarms, insulators, and other hardware will become inadequate to take such increased voltages. An existing example of inade-

quacy due to load growth has been experienced by the REA's, where 1—5-kilovolt line transformers have had to be scrapped, since there was no place for them in even the lighter loaded parts of the system.

Similarly, circuit breakers and other protective devices will tend to become inadequate due to the inability to interrupt the much heavier short circuits which the increased loads will create. Another trend which has been developing lately is to put distribution lines underground in residential communities, and this in turn will tend toward an earlier retirement of overhead lines.

The current and projected consumption of electricity for air conditioning, higher lighting levels, space heating. laborsaving appliances, etc., renders the present basic 120-volt utilization level too low for efficient use of electricity. Thus the industry is faced with the adoption of standards for new and radically higher voltage levels.

OTHER important items of utility property which will have a tendency to be retired earlier than normal due to the rapidity of system growth are watt-hour meters and distribution lines, transformers, and services. With regard to meters it is clear that the five and ten ampere sizes will have to be scrapped earlier than in the past, owing to the fact that there will be few if any parts of the system where meters of such capacity can be used for residential and small commercial service.

With respect to distribution lines, transformers, and services, the question of inadequacy will arise due to the rapidity of load growth, and they in turn will be scrapped for the same reason that many utilities had to get rid of their small line transformers.

Retirements Due to Highway Construction

ANOTHER important cause of retirements will be the $100 billion federal highway program. The relocation of lines which frequently follows existing highways will increase materially the rate of retirement for electric utilities. Companies must face the problem of having to pay as much as $10,000 per acre for new rights of way. The overall effect of the continuous escalation of land values and increased costs of acquiring rights of way of up to $10,000 per acre is such that utilities will be forced to retire low-

> "... the recent AEC's development of a small reactor to convert heat directly into electric energy is of interest. While the AEC was careful to point out that this device was in the early stages of development, no one could preclude the eventual elimination of boilers, turbines, and generators from central stations. In fact it is not inconceivable that the future trend may be reversed, and that instead of distributing energy from a central point, each house or industrial plant would have its own small atomic pile to produce its power requirements. Such a development would tend to render existing facilities in the electric utility industry obsolete."

voltage lines in the existing rights of way and install high-voltage transmission towers in the new location.

Conclusion

THE forecasts and facts presented herein indicate that present tax depreciation rates used in measuring lives of electric utility property are inadequate and will not provide sufficient tax depreciation accruals necessary to create the reserves against which depreciable property can be charged off in the future. It can be said that the immediate postwar years witnessed a break with the past, both as to the rates of growth, physical size of machines, the emergence of automation, and the prospects of developing new sources of energy by other than conventional means which were unheard of three or four years ago. In the determination of the present composite tax depreciation rates undue emphasis has been placed on the past history of property retirements, and consideration of post-World War II conditions and probable future developments have been given too little weight.

It is obvious that conditions will vary between companies as to the applicability of some of the items of obsolescence mentioned in this article. To that extent each individual company would have to make studies as to the present and future impact of the rates being currently taken for tax depreciation purposes.

REASONABLE depreciation allowances consistent with the property's statistical position are claimed in order to avoid conflict in future years with the Internal Revenue Service regulations for failure to deduct adequate depreciation during the current years of the useful life of the depreciable property.

The current tax depreciation rates which have been set generally predate the developments mentioned herein, and it is clear that higher rates of depreciation must be taken in order to provide for the risks and contingencies of the future.

"AMERICAN labor has tremendous influence both political and economic. It is subject to little control or regulation. Its leaders have the power to weaken or strengthen the national economy according to the direction they chart their future course. If labor works with management on a realistic 'give-and-take' basis, together they can reach a solution of human problems caused by technological progress that is to the advantage of each and to the benefit of the public. But if labor continues to use its great political power and economic strength to maintain inefficient work practices, unneeded jobs, it may win temporary victories. But it will win them at its own peril—and the peril of the nation as a whole.

"In a free business system, jobs and economic expansion are created by profits—not by unions or politicians."

—J. W. ORAM,
Vice president, personnel, Pennsylvania Railroad.

Should We Save Urban Transit, and How?

By CHARLES E. STONIER*

People will ride public transportation if it is made attractive to them. And many economic benefits stem from spending money to modernize mass transit. Financial aid can be justified at the federal, state, and local levels, including tax forgiveness and subsidy. The best bet for successful planning and financing would be a regional agency vested with both highway and transit authority.

It has generally been acknowledged that public transportation in metropolitan areas is facing a crisis, in effect a struggle for survival. If we adhered to traditional market values, it would be simple to reason that demand for public transportation services has been diminishing, that the general public has increasingly preferred the use of private automobiles, and that, therefore, the salvaging of bus, subway, or rail service may not be justified. On the other hand, we also know that a strict application of market criteria rather oversimplifies the problem, and that the utility of urban transportation must be evaluated in terms of its overall impact upon the economy which it serves.

As an enterprise vested with a substantial public interest, transit, even in the face of declining demand, has a very decisive rôle to perform if urban areas themselves are to maintain their economic and social health.

There is an additional rationale which decidedly indicates that transit is worth saving. Moving large numbers of people into and out of high population and business density segments by means of mass transport is technically the most efficient method. Consequently, the encouragement of public transportation under conditions of economic aid can be justified on the ground that such aid is more than compensated for by the economic benefits that can be both directly and indirectly attributed to the preservation of public transportation systems in our cities. These benefits include (1) reduction in the cost of vehicular traffic

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congestion, and therefore lower cost of automobile operation, maintenance, depreciation; (2) curtailment of property damage and loss of life; (3) smaller financial losses for railroads burdened with commutation services; (4) stimulation of declining retail and other services in central business districts; (5) possible spurt to industrial expansion; and (6) generally improved land utilization, especially within so-called gray areas. It is on these grounds that special financial aids to the transit industry are justifiable.

It is not the purpose here, however, to discuss the basic assumptions that transit is more efficient and economical and that it can also be more convenient than the automobile when used for certain kinds of travel within the metropolis. Instead it is attempted to review some of the suggestions and arguments for aiding transit and to examine them in the light of economic feasibility and soundness.

Federal Aid

In most instances the urban transit problem has been viewed as a local issue. Our concepts of federal participation are based almost entirely on geographical acreage rather than numbers of people involved. Yet it is well-known that more than 70 per cent of our population lives in urban areas and that aid to this group could hardly be considered "local" in scope. In terms of sheer numbers of potential beneficiaries, federal aid can be substantiated. Furthermore, users of public transit represent only one group of beneficiaries. Other economic interests such as real estate, trades and services, and other expanding industries are examples of groups whose welfare may be materially enhanced by adequate public transportation services. A broad tax base, rather than direct user charges, is therefore supportable.

There is some precedent for the subsidization of so-called local transportation: The federal government at present subsidizes local service airlines, at a rate of 3½ cents per passenger mile; one might well argue, therefore, why not extend aid to those who must travel every day. The *daily* volume of rapid transit and suburban rail patrons exceeds the *annual* number of feeder air-line passengers.

Many proposals for the rehabilitation of public transit have included the federal government as a partial sponsor of urban transit service. There are, however, certain additional considerations before federal participation can be fully rationalized. First of all, it always appears to be the easiest way out to look toward the federal government for help whenever a public service runs into financial difficulties. This does not make the federal government necessarily the most logical contributor. Secondly, it would be rather unwise to set up support of transit operations with the proviso that losses will be underwritten by the federal government when some of these losses are attributable to highway road expansion which is also largely aided by federal taxation. In other words, any participation in urban affairs on the part of the federal government must be adequately co-ordinated to prevent wastage.

It would seem highly desirable that urban renewal projects, arterial highway construction, and aid to transit be combined in such a way as to integrate com-

pletely each other's efforts and thereby to stretch the tax dollar as far as possible. Only under these conditions can federal aid be made fully justifiable. It may very well be that with such a co-ordinated approach the need for federal participation in urban public transportation can be substantially reduced.

State Aid

THERE has also been reluctance to invoke state aid for urban transportation, even though a large segment of a state's population resides within metropolitan regions. Again on the basis of numbers of individual beneficiaries, such state aid may be justifiable.

The largest sources of state revenues usually come from income, general sales and motor vehicle taxes. As with the federal government, a case for subsidization of transit from general revenues can be made on the ground of general economic welfare generated beyond the immediate benefits accruing to users.

The use of motor vehicle taxes, however, suggests an additional interesting argument: The construction and improvement of rapid transit facilities in and out of central business districts represent a much more efficient expenditure in terms of the larger passenger volume which can be moved than by the building of highways which are especially expensive within highly congested cities. Funds applied more economically for urban transportation would release others for the construction of highways in areas outside the city. For example, if $50 million were to be spent on a new rapid transit line instead of say $100 million on a highway for the equivalent purpose of moving people from suburb to city, then, at least in theory, $50 million could be spent on projects elsewhere. In the meantime the motorist, both within and outside of urban areas, will have benefited. There will be less traffic congestion in the city, and there will be more roads for him outside the city. Justification for the use of state motor vehicle taxes for urban transit purposes is therefore possible.

Other Public Aids

Local Tax Forgiveness

AT the local level, we have already found public aid to transit in the form of property tax relief. Of course,

Subsidized Streetcar Service

"A UNIQUE situation exists in New Orleans where the privately owned electric utility company subsidizes the streetcar operations and where a fare of seven cents per ride has been maintained for many years, with the result that there has been no noticeable shrinkage in transit rider patronage. Here the use of electricity in effect helps to subsidize transit operation. It is doubtful, however, that a similar situation can be voluntarily adapted elsewhere, although electricity consumption as a tax base is in effect—if not in principle—analogous to taxation on gasoline or property for the purpose of maintaining an adequate transportation system. Benefits derived under such a system accrue to both users and nonusers."

very few communities today can afford to have their tax base reduced in any way, and, consequently, there is considerable reluctance to the forgiving of real estate taxes which are under the domain of local governments. There are, however, two considerations here which may calm some of their fears. In the first place, if such tax relief results in improvement of transit services and subsequently in greater patronage, it may ultimately increase property values to those who benefit from the transit facility.

More widespread property tax relief is a matter of especial concern to the railroad industry which in contrast to other carriers is taxed on its right of way. Perhaps it can be worked out that communities which lose revenues from railroad property taxation be reimbursed by the state or federal government for any losses until such a time that their tax base resumes the level in existence at the time of the tax forgiveness. The Long Island Railroad, which operates under a special provision from the state, is an example of a carrier which has been able to hold its commuter business, and this has been due in some measure to partial tax forgiveness.

Authority Toll Revenues

ANOTHER possibility which applies especially to the New York metropolitan area is the use of tolls currently collected by special purpose authorities. The Port of New York Authority, in particular, as a multipurpose agency has used tolls in the past for the development of nonhighway projects such as airports, marine terminals, and others. To the extent that the highway user tax argument presented applies equally to the use of tolls, this method would appear to make sense. The Port of New York Authority in the recent past has resisted getting itself involved in the transit business purportedly on the ground that such operations can never be self-sustaining; and since the law under which such authorities are constituted provides that they must be self-liquidating, the position of the Port Authority is understandable.

On the other hand, there is the question of whether or not each individual operation of this agency must be able to stand on its own feet or whether the authority is to maintain itself only in the aggregate. Since presumably it is the latter course which has been followed by the Port Authority, as many of its projects are operated in the red, it may well be argued that it should be held responsible for salvaging and revitalizing railroad operations, particularly for the benefit of commuters.

IT is pertinent at this point to turn briefly to the alleged unavoidability of transit deficits. Most evidence would indicate that with the highly skewed peak load distribution inherent in suburban railroad and rapid transit operations, there is little chance to make ends meet. On the other hand, if appropriate tax relief for a modernized high-speed system is granted, the chances for a minimal or even no deficit are much improved. Railroad officials of the Chicago & Northwestern Railroad have confirmed this. But much more study is needed to estimate the total market and patronage which may be obtained under conditions of modernized operation. Most transit deficits have been estimated on the basis of existing services, which in many

cases are considerably less than attractive.

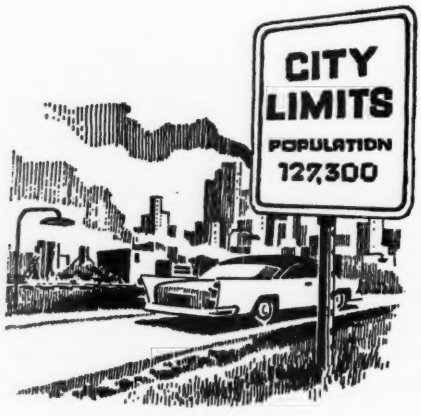
It is conceivable that in view of the rather substantial wealth of public authorities in some of the metropolitan areas, improved transit systems could be developed without cost to the taxpayers at either federal, state, or local levels, and to the extent that this might be a possibility, this consideration seems to be preferable to all of the other methods of aid.

Miscellaneous Aids

THERE have been several additional types of special aids with which various communities have experimented. The city of Philadelphia, for example, has underwritten joint rail and subway operations from one of its suburbs in order to avoid bringing more automobiles into the downtown area. Apparently it has been reasonably successful. In Staten Island, New York, rapid transit service is maintained by the city having taken over the property of the Staten Island Rapid Transit Company, a subsidiary of the Baltimore & Ohio Railroad, and leasing it back to the latter. By doing this, no property taxes are paid, and at the same time operation under private management

Why Not Use Motor Vehicle Taxes?

"THE largest sources of state revenues usually come from income, general sales, and motor vehicle taxes. As with the federal government, a case for subsidization of transit from general revenues can be made on the ground of general economic welfare generated beyond the immediate benefits accruing to users. The use of motor vehicle taxes, however, suggests an additional interesting argument: The construction and improvement of rapid transit facilities in and out of central business districts represent a much more efficient expenditure in terms of the larger passenger volume which can be moved than by the building of highways which are especially expensive within highly congested cities."



is able to continue. The Staten Island arrangement could well serve as a model for other types of suburban rail services.

Turning once more to the Port of New York Authority, it has been given permission to engage in the financing of railroad passenger cars at especially low interest rates. But so far, railroads have not availed themselves of this service. Also, it might be noted that this type of aid is not likely to be of any major consequence in halting the trend of declining railroad patronage.

A UNIQUE situation exists in New Orleans where the privately owned electric utility company subsidizes the streetcar operations and where a fare of seven cents per ride has been maintained for many years, with the result that there has been no noticeable shrinkage in transit rider patronage. Here the use of electricity in effect helps to subsidize transit operation.

It is doubtful, however, that a similar situation can be voluntarily adapted elsewhere, although electricity consumption as a tax base is in effect—if not in principle—analogous to taxation on gasoline or property for the purpose of maintaining an adequate transportation system. Benefits derived under such a system accrue to both users and nonusers.

Restrictions of Automobile Use

LIMITING parking, restricting vehicular use by means of one-way streets, setting aside lanes for bus traffic, or closing off entire downtown blocks for conversion to pedestrian shopping malls, are examples of indirect aids to the transit industry. In most instances they are severely criticized by those dedicated to the preservation of motor vehicle use sovereignty. In several communities, however, such measures were enacted not so much to aid transit, but to attempt some control over rising traffic congestion and access problems.

Proposals to seal off entire central business districts or to exact tolls for driving inside such districts would appear to be unnecessarily punitive. Transit ridership need not be coerced. Instead it may be developed by the application of the latest technology in making the transit ride superior to private automobile use for commuting and other downtown travel. There is reason to believe that this approach can be successful, especially as the cost of automobile operation increases and its convenience diminishes as a result of urban congestion.

THUS there are several methods of public aid to urban transit which can be reasonably substantiated on the basis of both direct user and general economic benefits. Since the specific nature of the traffic and transportation problem varies from one city to another, there is no single prescription. Each method of aid, or combination thereof, must be tailored to the needs of the affected community.

Perhaps traffic conditions in some instances still are not critical enough to promote more vigorously improved public transport services. There are indications, however, that at least the latter are being more widely discussed; and in some cities, such as San Francisco, Philadelphia, and others, substantial improvements are now on the drawing boards. In Cleveland, Boston, and Chicago some

important progress already has been made; but for the most part transport projects fall short of an integrated transportation policy in which each agency is encouraged to develop its inherent advantages. The preponderance of public funds is still channeled into highway construction.

In order to establish a better balanced transportation system, it becomes vital for most metropolitan segments, particularly those crossing state boundaries, that a co-ordinated regional agency be established which can plan, administer, finance, and in some measure operate joint highway and railroad systems. Unless some such co-ordinated effort takes place, it is most unlikely that urban and suburban dwellers can look for cheaper, more convenient, and safer transportation.

Summary

FEDERAL aid to metropolitan public transit is justifiable on the basis that (a) a large segment of the national population would benefit; (b) many specific economic interests would benefit, such as retail and service trades, expanding industries, real estate developers, etc.; (c) such aid is at present available to local service airlines.

Federal aid, in order to avoid waste, must be co-ordinated with all metropolitan projects involving federal participation, such as urban renewal and highway construction.

State aid from general taxation is justifiable for reasons similar to those enumerated in connection with federal aid. In addition, aid derived from motor vehicle user taxes can be substantiated on the ground that when applied to urban transit projects, it obviates the need for more expensive highway construction inside metropolitan areas. This will make possible more highways in less congested parts of the state, and at the same time would improve the flow of traffic in urban sectors.

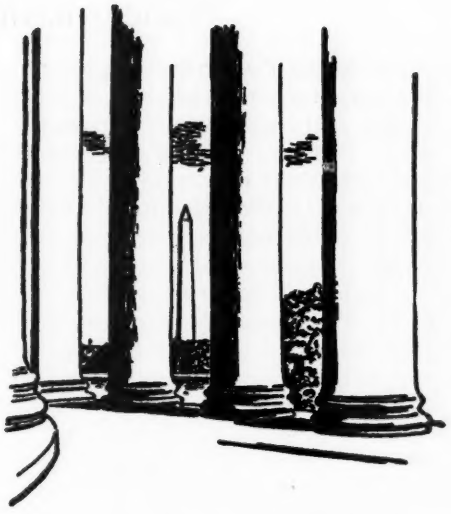
LOCAL aid by means of property tax relief for rail rapid transit lines is desirable. Where tax forgiveness results in critical revenue losses, they may be recompensed through state or federal aid. Such aid may be continued until economic expansion results in restoring the original tax base.

Where special purpose authorities with high earning capacity exist, such as in the New York region, toll revenues may be applied to the rehabilitation and capital expansion of public transit. Benefits would include vehicular traffic relief.

Public transit patronage should be encouraged by means of providing superior service, rather than by the adoption of measures to restrict motor vehicle use in downtown districts.

For the purpose of achieveing a balanced transportation system in urban areas, a regional agency which embraces both highway and public transit for planning and financing purposes is likely to offer the best solution for metropolitan transport problems.

Washington and the Utilities



Regulatory Reform

QUITE a few offshoots from the original seeds of investigation planted by the House Legislative Oversight Subcommittee have sprouted in different sections of the Washington scene this spring. The House group, of course, still provides the main forum for various proposals on regulatory commission reform.

But there are quite a few side shows, and some of them rather interesting. For example, the Justice Department and the Securities and Exchange Commission were reported to be closely following the controversial gas pipeline rate decision of the Federal Power Commission last October 31st. SEC is said to be interested in whether a prospectus filed February 17th before the SEC on a 1.6 million stock offering of Tennessee Gas Transmission Company indicates that that company is contemplating further investment in its subsidiary, Midwestern Gas Transmission Company. FPC Chairman Kuykendall indicated before the House Interstate Commerce Committee last month that Thomas G. Corcoran, Washington, D. C., attorney, had informed him that Tennessee Gas Transmission was about to divest itself of most of its Midwestern holdings. It was for that reason that Corcoran urged that a higher rate of return be allowed Midwestern.

The Justice Department angle indirectly introduced the White House into the already somewhat crowded picture. This arose from the fact that last December 2nd a newspaper correspondent at one of President Eisenhower's press conferences asked the chief executive about Corcoran's visits to the members of the Federal Power Commission, which had become an item of gossip along the Washington rialto. The President at that time asked Press Secretary James Hagerty to remind him to discuss the situation with the Attorney General. But a spokesman for the Justice Department denied the situation had been referred to it by the White House. It was admitted, however, that the Justice Department is looking into the case as a result of the testimony before the House group.

THIS testimony so far indicates that the commissioners acted quickly to beat a deadline on contract expiration for a Canadian gas supply. In doing so they

followed neither the recommendation of FPC's staff (for rates which would yield a 6¼ per cent return) nor Corcoran's reputed advice that a 7 per cent return was needed. The FPC approved the application last October 31st for the construction of the necessary pipeline, but left open the question of the rate of return which would be set by the commission after the company obtained financing. Kuykendall and the other two commissioners who were contacted by Corcoran (an ex-New Deal brain truster and reputed coauthor of the Public Utility Holding Company Act), Commissioners Kline and Connole, have denied that they were influenced by their talks with Corcoran. Commissioner Stueck was absent, and at that time the late Commissioner Hussey was ill.

EARLY in April spokesmen for the American Bar Association urged Congress to enact legislation to prevent backdoor influence or pressure on federal regulatory agencies. At the same time it cautioned against making operation of the agencies more difficult or isolating them from information. The views of the ABA were presented by Donald C. Beelar and Bryce Rea, Jr., to a House Commerce Committee hearing on bills to prohibit behind-the-scenes attempts to sway members of regulatory agencies. They said that while six of the regulatory agencies which already have testified manifested reluctance to adopt laws of conduct, the ABA felt that standards of conduct prescribed by law for those who practice before federal agencies are needed. Beelar and Rea added that the agencies themselves should set the "tone of practice" before them. The ABA is of the opinion that in all proceedings involving hearings of cases there should be no secret communications.

AMONG the regulatory agencies themselves, the proposals for regulatory reform had set off two separate federal commission developments. At the Interstate Commerce Commission it was revealed that that group has been busy for some time investigating itself and its own practices. At the Civil Aeronautics Board it was disclosed that the counsel and staff had been busy getting up statements to refute critical charges made by former Commissioner Louis J. Hector when he resigned from the CAB last September.

The ICC activity was revealed by a member of that commission, Abe McGregor Goff, to the House Interstate Commerce Committee. Goff told Representative Harris (Democrat, Arkansas), committee chairman, that he and other commissioners had become convinced that a constructive study of ICC operating methods was vital. An 18-man advisory board was thus formed, he said, including representatives from all modes of transportation, as well as the former president of the National Association of Railroad and Utilities Commissioners, Walter R. McDonald, a member of the Georgia Public Service Commission.

When ICC General Counsel Ginnane was asked by Chairman Harris how thorough the investigations have been, he replied that the criticisms of the board were frank to the point of bluntness. Ginnane said that when the final report of the group was in, the ICC would endeavor to appraise the recommended changes. The commission also will try to put into effect any thought to be worth while. To do this would require legislation by Congress, Goff pointed out.

ON the CAB sector, two statements were released purporting to refute the charges of former Commissioner Hector. CAB General Counsel Stone in-

sisted Hector was "jumping to conclusions on the basis of selected or nonexistent facts." He said Hector's ideas were not only vague, but offered no constructive solution to present CAB problems. (Hector wanted to turn over the functions of the CAB to the executive branch and an administrative court.)

Stone admitted that there was need for correction and change in certain areas, but warned against trying to reform the regulatory process in hasty fashion. He said Hector's scheme for a Department of Transportation to unify regulation of all interstate transportation was unworkable and contrary to the existing congressional design. Regulation through an independent agency such as the CAB or the ICC is still the best way, Stone emphasized. A more detailed criticism of Hector's charge was contained in a 59-page statement written by the staff of the CAB.

Reform Legislation

As for specific bills before the House Interstate Commerce Committee, FPC Chairman Kuykendall has made some recommendations on HR 4800, a bill introduced by Representative Harris and designed to curb influence peddling in the federal regulatory agencies. He said the requirements of the measure have some virtues, but do not clearly define morality which, inevitably, is difficult to inculcate by statute. He called attention to the fact that the bill did not prohibit ex parte communications in FPC rate cases, and since they constitute the major portion of the agency's contested cases, the wording ought to be changed to cover such contested cases. Kuykendall said he thought a provision of the proposed bill went too far in prohibiting the receipt of ex parte communications respecting the "disposition of any proceeding. . . . Even the separation of function provisions in § 5 (c) of the Administrative Procedure Act recognizes the necessity to allow ex parte communication in procedural matters, and of course these will affect the disposition of the case."

Senator Butler (Republican, Maryland) has introduced a bill (S 3308) which would make it both "unlawful and unethical" for members of the federal regulatory agencies to have outside contacts with persons involved in pending cases. His legislation would amend the Administrative Procedure Act of 1948 to outlaw ex parte contacts, or those without notice to the other side, between rate applicants and agency members or employees. Butler said the purpose of his bill is to establish a standard of ethical conduct in the agencies similar to that required of federal judges.

A BILL to close the door on alleged "influence peddling" by retired Generals and Admirals has been denounced by its original sponsor, Representative Hebert (Democrat, Louisiana). He said his bill, as revised by the Armed Forces Committee, provided for only one penalty for officers who take selling jobs with defense contractors within two years after they retire—temporary loss of their retirement pay. Hebert, who is chairman of the Armed Services Investigation Subcommittee, is seeking approval now of a substitute bill which would make any direct sales within two years after retirement of armed forces officers a crime punishable by a $10,000 fine and a year in jail. He pointed out that his original bill as amended by the Armed Forces Committee has no teeth in it. He said retired officers would gladly sacrifice up to $10,000 a year pay in order to move into jobs paying $25,000 to $50,000 a year.

The chairman of the Armed Services Committee, Representative Vinson

(Democrat, Georgia), has strenuously opposed Hebert's attempts to get a tough anti-influence bill approved. He said the proposed flat ban on defense sales for two years after retirement would deprive the defense industry and the country of invaluable services of experts. A subsequent bill by Representative Kilday (Democrat, Texas) would make such violations a court martial offense.

Snake River Hearings July 18th

AFTER moving very deliberately or hardly at all on a private company application for a hydro license to develop the High Mountain Sheep dam site on the Snake river, the FPC has suddenly decided to hurry things along. The impetus seems to have come from the filing of a rival application to develop the Nez Perce site by a government ownership power group. The FPC seems almost to have been waiting for the filing of a Nez Perce application.

The FPC has ordered hearings to begin July 18th in Washington, D. C., on the conflicting applications by private and public power interests proposing hydroelectric developments on the Snake river between Idaho and Oregon.

Pacific Northwest Power Company, Portland, a private utility, seeks a license for its proposed $178 million Mountain Sheep project, which would include a 690-foot high dam across the Snake, about one-half mile upstream from the Salmon river. The Washington Public Power System, Kennewick, Washington, wants to build its proposed $276.5 million Nez Perce project, including a dam 700 feet or higher, on the Snake about two and a half miles downstream from the confluence with the Salmon. The system is composed of 13 public utility districts in Washington state.

The commission ordered submission of all direct testimony by June 16th in a move to speed the hearing. The examiner will dispose of preliminary matters when the hearing convenes July 18th, provide for the testimony to be placed in the record as though read, and proceed immediately with the cross-examination.

The Mountain Sheep project would have an initial installation of 875,000 kilowatts, and ultimate generating capacity of 1,750,000.

Dixon-Yates Again

THE United States Supreme Court on April 4th agreed to decide whether the controversial Dixon-Yates power plant contract was ever valid or had been made void by a conflict of interest. Ostensibly at stake is an award of $1,857,545 approved by the U. S. court of claims to the Dixon-Yates combine for expenses incurred before the United States canceled the contract in 1955.

The legal question is whether Adolphe W. Wenzel's actions, in serving as an unpaid consultant to the Budget Bureau on the project while remaining a vice president of the investment firm which later became its financial agent, violated the federal conflict of interest statute and made the contract void. The court of claims ruled 3 to 2 that there was no conflict.

Inasmuch as the appeal cannot be heard nor disposed of by the highest court until the term which starts next October, the Dixon-Yates controversy as it might affect any government ownership issue would seem to be taken out of the forthcoming political campaign.

Telephone and Telegraph

Radio Broadcast Pay TV Test

HARTFORD, CONNECTICUT, will soon be the scene of the first large-scale test of radio broadcast pay TV, providing the Federal Communications Commission approves an application which will be filed by the Zenith Radio Corporation and RKO General.

In 1951 Zenith tested pay TV (called "Zenith Phonevision") in 300 Chicago homes; however, part of the signal was transmitted over telephone lines. The present system will eliminate the use of any wire transmission. The viewer's set will be equipped with a device which will collect coins and descramble the broadcast signal. In effect, any TV set in the area will be able to receive the transmitted picture but it will be intentionally distorted to the point where viewing is impossible without depositing a fee in the coin box and activating the descrambling device. It is proposed that new movies, plays, and sporting events will be broadcast for a few hours each evening. The descrambling device will probably be rented to subscribers at a fee of about $2 per month and then additional fees for viewed programs will be deposited in the device or a billing arrangement will be made. Zenith officials have noted that these details are still in the planning stage.

The Zenith system, utilizing complete air-wave transmission, will form an even more valuable testing ground since the International Telemeter Company (a division of Paramount Pictures Corporation) is now engaged in a wired pay TV experiment in Etobicoke, Toronto, Canada. A comparison of the relative success of these two systems should provide a valuable indicator of the future of these two schemes and of pay TV itself.

The approval of the Federal Communications Commission is not needed for the closed-circuit "wired" transmission. However, the Zenith system, even though falling under the commission's jurisdiction due to its use of the public air waves, is considered by many financially more feasible since it requires no cable from the station to the subscriber.

BOTH the Zenith and the Telemeter system permit the viewer to receive commercially sponsored programs at no charge. The advantage will be that top-flight programs can be received, for a stated fee, and the home owner will be able to select those shows for which he is willing to pay.

The Hartford area, with approximately 360,000 viewing homes, was selected by Zenith for the three-year test in order to

prove that stations not affiliated with the networks can operate in the black if they are permitted to engage in subscription broadcasting. Hartford is looked upon by company officials as a typical American city which is well-suited for such a test program.

Company spokesmen have indicated that contacts have been made to assure that "live" Broadway plays and major sporting events will be available to the Hartford subscribers. Joseph S. Wright, president of Zenith, has stated that tooling up for production will have been completed by the time the commission grants authorization to go ahead and he indicated that descrambling units would be delivered "in a matter of months" thereafter.

Communications Workers Issue Legislative Handbook

THE Communications Workers of America (AFL-CIO) has issued a handbook urging union members to put new vigor into the drive for legislation promoting the welfare of workers at the national, state, and community level.

The CWA represents 350,000 workers in the industry. Union members work and live in some 65,000 communities in 47 of the states, including Hawaii, and four provinces of Canada.

In connection with the release of the handbook, Joseph A. Beirne, president of the union, stated that the union must work harder than ever in the legislative field in 1960. He expressed the hope that the handbook will encourage union members to work with legislators in all levels of government and he noted that the union is specifically committed to activity in the legislative field.

The publication itself stresses historic and constitutional reasons why the union is interested in various aspects of legislation. It calls upon union members to "take a greater interest in what our lawmakers are doing, let them know we are keeping an eye on them, give them encouragement when needed, appreciation when they do right, censure when they do wrong."

Direct Dialing of Extensions

"DIRECT inward dialing" is being started in ten large companies in New York city. The system enables an outside caller to dial an extension direct rather than go through the company switchboard. It is estimated that some twenty-eight seconds are required for an operator on a switchboard to refer the caller to the correct extension. Bypassing the switchboard will speed telephone traffic as well as effect savings in money.

A spokesman for the New York Telephone Company has estimated that only 15 out of every 100 incoming calls would be handled by the switchboard operators once the callers learned the direct inward dialing system.

Time, Inc., has been using the system since mid-February and very favorable results have been reported. The switchboard operator, greatly relieved from the pressure of transferring incoming calls, can assume a position much like a receptionist.

The system makes every extension in effect an outside line. However, only the company's switchboard number will be listed in the telephone directory and individuals will have to advise their business contacts of their particular dialing number or in some cases companies may want to publish their own telephone directories. The system is only recommended for groups which are moving to

new locations and who have a large number of incoming extension calls.

New adding machine size console switchboards were designed by the Western Electric Company; however, some customers, such as Time, will continue to use the older plug-and-cord type boards. Arbitrary letter designations have been selected so that the caller will dial "LL6" and the proper extension in order to reach Time, Inc. Should the extension be busy or the phone unanswered, the company operator will cut in on the fifth ring and take a message or refer the call to some other phone.

Separations Manuals Controversy

A VARIANCE of opinion has arisen between the Bell system and the United States Independent Telephone Association over which of two separations manuals should be used in determining the sharing of toll compensation among such companies. *Bell-Independent Individual Cost Study Manual for Class A and B Telephone Companies* has been circulated through associated Bell companies and was also made available to any independent company desiring to utilize a cost study approach. Last October, however, the USITA released its own official manual for the association. It appears that the Bell manual contains some provisions previously pointed out by USITA representatives as unacceptable.

USITA considers the Bell manual to be unacceptable for use in studies to determine independent company costs of handling Bell-independent interchanged message toll business. The association has urged its members to use the USITA separations manual which was prepared, following the recognition that there was a "long-standing need" for such a publication by the USITA. The preface of the USITA manual notes that it was prepared by a task force of independent representatives and approved by the various committees, and it was reviewed by representatives of the Bell system.

FCC Secretary Resigns

MARY JANE MORRIS has resigned as secretary of the Federal Communications Commission and she has announced that she intends to return to private law practice in Michigan and Washington. Miss Morris joined the FCC staff in 1948 and she has served as secretary since 1954. She was the first woman ever to serve as secretary to the commission and her name was mentioned as a possible choice for the vacancy which occurred when John C. Doerfer resigned. The nomination, however, went to Edward K. Mills, Jr.

Ohio Bell Continues Excise Tax Fight

IN spite of the general opinion that the federal telephone tax will be retained, the Ohio Bell Telephone Company is continuing its fight to have Congress defeat the extension of the levy. Ohio Bell has enclosed in subscribers' bills a note asking the subscribers to contact their representatives in Congress, urging them to vote against any extension of the tax. The enclosure stated that 30 cents of every dollar paid for telephone service goes for tax and that the company had paid $25,245,000 in federal excise taxes last year on local and long-distance service. Some 1,650,000 such notes were sent out.

In spite of the strenuous activity against the tax, it still seems likely that it will be reinstated by Congress.

Financial News and Comment

By OWEN ELY

The FPC Should Allow a Higher Rate of Return than 6 Per Cent or 6¼ Per Cent

THE FPC staff seems to be still living in the days of "cheap money" and making little concession to the greatly increased cost of financing. Examiner Samuel Binder, in a recent decision in a United Gas Pipe Line case, has proposed reducing the requested increase in rates from $15.8 million a year to $9.3 million.

The staff had recommended a return of only 6 per cent, which Mr. Binder raised to 6¼ per cent. According to Dow-Jones' news ticker report, the company had asked for 7½ per cent, but this high figure apparently reflected an accounting adjustment made by the FPC examiner. In a later case involving an $11.4 million rate increase, the company has asked for a return of 6¾ per cent, which application has been suspended because the company has not "supported" the claim for this return.

Mississippi River Fuel Corporation, in a recent request for a rate increase of about $2.6 million annually, has proposed an 8 per cent rate of return, perhaps in the hope that this will point up the inadequate rates of return heretofore allowed or proposed.

THE papers have been full of headlines recently about the behind-the-scenes efforts of lawyer-lobbyist Thomas G. Corcoran (one of President Franklin D. Roosevelt's "brain trusters") to obtain a 7 per cent overall return on the proposed investment in Midwestern Gas Transmission Company, in which Tennessee Gas has the equity interest. The question of rate of return has been left open by the FPC although 6¼ per cent had been recommended earlier. Construction of the pipeline has been authorized, and the Canadian Energy Board recently ap-

DEPARTMENT INDEX

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proved export of Canadian gas into the upper midwestern states which will be served by one segment of the new line.

Last year the average yield on 16 issues of bonds offered to the public by gas companies averaged about 5 per cent, and the rate on nonconvertible preferred stocks about 5.5 per cent (on convertible issues yields averaged 4.8 per cent). Midwestern itself about a year ago planned to sell $35 million first 5½ per cent bonds and $5 million unsecured 5 per cent notes, which issues would total 81.6 per cent of the capital structure.

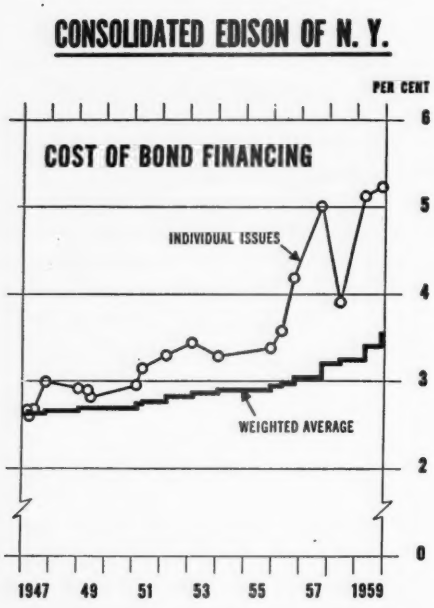
With present high costs for senior financing, an overall return of only 6 or 6¼ per cent is adequate to properly finance the equity portion of capitalization for a large new pipeline project. Based on the capital structure as proposed by Midwestern about a year ago, a 6 per cent overall return would provide a return on common stock investment of only 8 per cent, or with 6¼ per cent overall about 9.3 per cent. These figures, which do not allow for underwriters' compensation and other costs of financing, seem obviously inadequate to support reasonable equity financing under the present adverse market conditions prevailing with respect to gas pipeline stocks. (See accompanying chart on utility stock groups, page 620.)

THE highly successful pipeline financing programs of recent years (the various Canadian companies, Houston Corporation in Florida, etc.) were generally based on private placement of mortgage bonds and sale to the public of units consisting of debentures and common stock. This formula for financing no longer seems to have the same investment or speculative appeal as formerly, judging from the results of the last two flotations. The public's increasing awareness of the regulatory mess in which the pipelines have become involved in Washington, together with recent FPC decisions which have proved unfavorable with respect to tax accounting and rate of return, have doubtless been an important factor in the present lessened popularity of pipeline equities. To restore these securities to their former market status and encourage the financing of new enterprises or extensions of old ones, a more liberal approach at Washington seems badly needed.

Con Ed's Bond Money Cost Doubled in Twelve Years

THE chart on page 618 reproduced from the 1959 report to stockholders of Consolidated Edison Company of New York illustrates the sharp rise in the cost of bond money since 1947. Consolidated Edison is the largest electric and gas utility and since 1947 it has issued nearly a billion dollars of mortgage bonds. In 1947 it was able to sell three issues at yields as low as 2.59 per cent, but the latest issue in 1959 carried a coupon rate of 5.25 per cent and was sold at a slight premium to cost about 5.20 per cent. On a *weighted average* basis the cost has only risen from 2.59 per cent to 3.52 per cent; however, it is obvious that the average rate will continue to rise steadily even if the recent improvement in the bond market should continue somewhat further.

The recent failure of the Treasury to sell more than $370 million of a proposed $1.5 billion long-term issue with a coupon of 4¼ per cent indicates that we are not headed back toward the low money rates of the 1940's and early 1950's, even if the FRB's "tight money" policy (designed to prevent inflation) has relaxed a little, along with the decline in the stock market and the subsidence of the "boom



psychology" of 1959. The government faces the refunding of over $11 billion of 2½ per cent bonds on November 15th, and it seems likely that the Treasury will either have to refund this with short-term paper or that Congress will have to raise the 4¼ per cent interest ceiling now imposed on long-term issues. The recent offering was apparently intended by the Treasury as a practical demonstration of the need for raising the limit, which certain Democratic members of Congress have opposed because of a basic disagreement with the Federal Reserve over "cheap money."

THE cost of short-term Treasury borrowing—which earlier had dropped back to 3 per cent or less—has again risen to the same level as the cost of long-term financing. As Paul Heffernan in *The New York Times* recently remarked (doubtless referring to the so-called five-year "Magic Fives" of last year):

> Probably the cost of short-term money must again soar well beyond 5 per cent and stay there before the Treasury can hope realistically to get the ear of the legislators. Conceivably, the public could empty the nation's thrift institutions of savings and switch the money into Treasury bills before the national legislators could get themselves to give the matter any serious attention.

Dow-Jones' Industrial Average Now Included in Chart

OUR chart "Trend of Utility Stock Groups" now includes the Dow-Jones industrial average, the recognized market yardstick (though some authorities now prefer Standard & Poor's 500-stock composite average). However, since this average started at an equivalent of 12 in 1942 compared with 8-9 for the utility groups (excepting the growth electric utilities which are not charted prior to 1947), the comparison with respect to long-term gains in the averages is no

	12/31/42	*12/31/47*	*4/6/60*	*Percentage Increase 1942–47*	*1947–60*	*1942–60*
6 Gas Pipelines	8.3	25.8	65.0	211%	152%	683%
11 Gas Distributors	8.7	19.9	48.5	129	144	457
31 Electric Utilities	9.1	12.7	34.4	40	171	278
3 Telephone	9.0	10.4	20.9	16	101	132
10 "Growth" Electric Utilities	—	10.8	55.8	—	417	—
Dow-Jones Industrial Average.	119*	181*	624	52	245	424

*Approximate.

longer so exact—as it would be if all the indexes were equated to a single figure in 1942. A more exact comparison of relative gains during the 17-year bull market is indicated by the table on page 618.

The percentage gains indicate that during 1942-47 gas pipelines and gas distributors were the most popular groups, considerably outdoing the Dow-Jones industrial average. However, in the period 1947-60 the "growth" electric utilities were outstanding with a gain of 417 per cent, compared with 245 per cent for the Dow average, 171 per cent for 31 electric utilities, and 152 per cent for the gas pipelines.

Illinois Supreme Court Now Supports "Normalization"

THE supreme court of Illinois has now modified its earlier decision in the Alton Water case (see comment in this department, page 254, February 18th issue) and the revised decision seems of special interest. A return of 5.6 per cent on fair value is found to be fair and reasonable. Depreciation as determined "by inspection" is considered preferable (in this case) to the straight-line method, when applied to fair value.

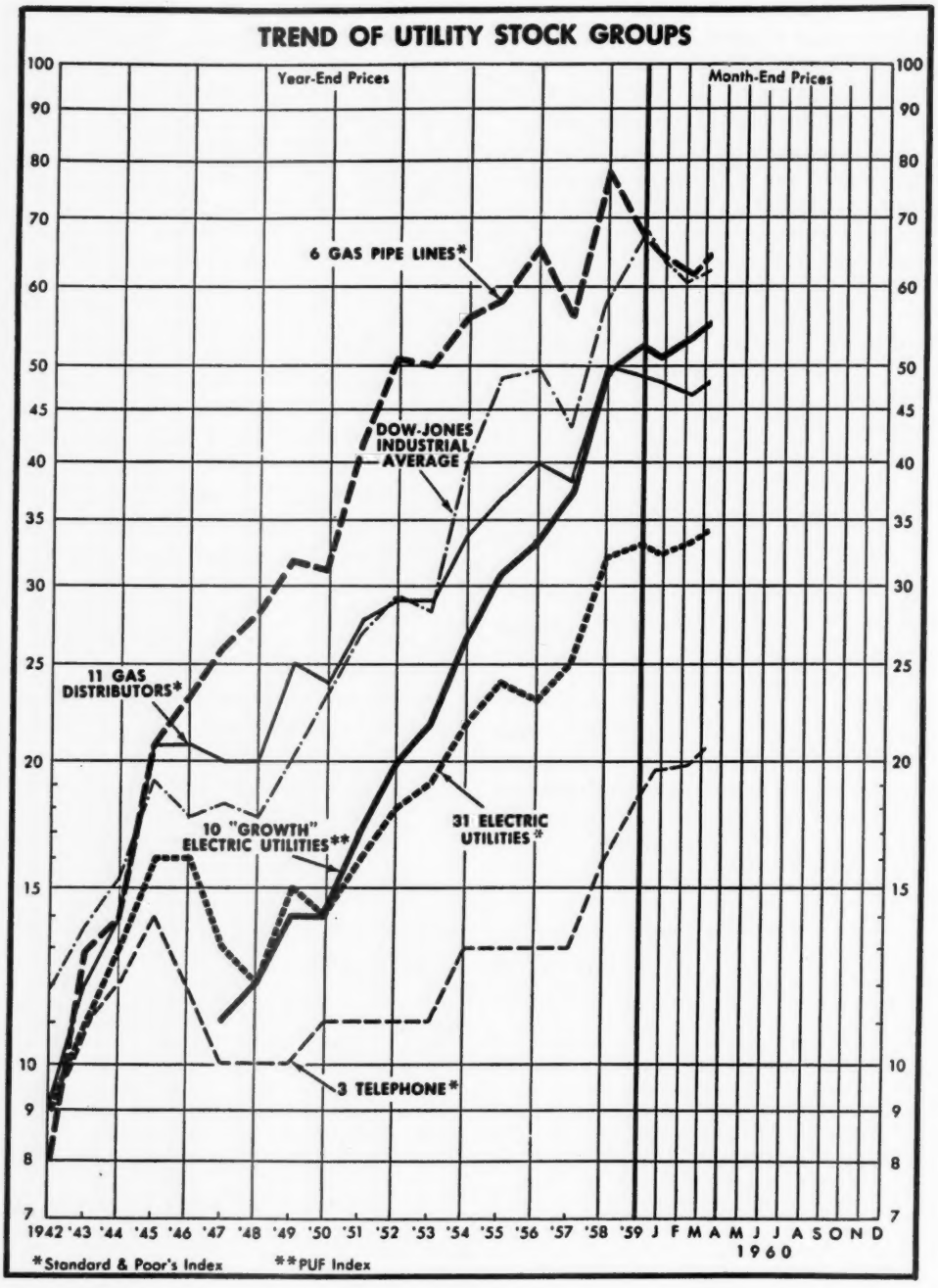
The overall return of 5.6 per cent is allowed despite the fact that with the peculiar capital setup, it would permit a return of 17 per cent on the common stock investment *valued at par*. The supreme court holds that the circuit court erred in assuming that the return on the *original* common stock investment was the relevant figure in determining the reasonableness of the overall return, stating:

> It would be inconsistent to judge the overall return on the basis of fair value but judge the return accruing to common shareholders on the basis of a par value which is essentially original cost. The significant figure is the rate of return on common stock valued at fair value. Several methods of computing this figure might be used. Either actual debt costs or hypothetical debt costs based on the current market might be subtracted from revenue after operating costs to produce net income allocable to equity. The fair value attributable to common stock might be determined by subtracting the par value of debt and preferred stock, to reflect the fact that all increments in value belong to equity, or by dividing fair value in the same percentages as book value.

CURRENT YIELD YARDSTICKS
(Standard & Poor's Indexes)

	Apr. 6, 1960	*1959–60 Range*		*1958 Range*	
		High	*Low*	*High*	*Low*
Utility Bonds—A1+	4.45%	4.72%	—4.23%	4.27%	—3.58%
—A1	4.50	4.76	—4.24	4.34	—3.61
—A	4.64	4.94	—4.44	4.51	—3.85
—B1+	4.81	5.19	—4.71	4.96	—4.20
Preferred Stocks*	4.70	4.90	—4.45	4.67	—4.26
Utility Common Stocks	3.95	4.13	—3.71	4.98	—3.81
Spread—Common Stocks *v.* A1+ Bonds	—0.50	—0.59	—0.52	+0.71	+0.23

*Twelve industrial and two utility issues (high-grade).


TREND OF UTILITY STOCK GROUPS
Year-End Prices
Month-End Prices
6 GAS PIPE LINES*
DOW-JONES INDUSTRIAL AVERAGE
11 GAS DISTRIBUTORS*
10 "GROWTH" ELECTRIC UTILITIES**
31 ELECTRIC UTILITIES*
3 TELEPHONE*
100
90
80
70
60
50
45
40
35
30
25
20
15
10
9
8
7
1942 '43 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 J F M A M J J A S O N D
1960
*Standard & Poor's Index
**PUF Index

REFERRING to the circuit court's decision that "flow through" of tax savings must be used for rate purposes to benefit consumers (contrary to the commission's position) the supreme court now reverses the lower court, remarking, "This conflict between the views of the commission and those of the court reflects a deep division in accounting and regulatory thinking which exists throughout the country. Persuasive reasoning and numerous decisions of courts and regulatory agencies may be cited in support of each position."

Regarding the well-known argument that because of continuing plant additions, deferrals in future years due to accelerated depreciation on these *additional new assets* will equal or exceed the increased tax liability arising during the later years of the useful life of the older assets—thus in effect producing a permanent tax saving which should be used to benefit consumers—the supreme court now holds that "several not unlikely events might occur which would prove the assumption erroneous. A war, a general depression or a decline in the local market might curtail a utility's capital expenditures, and prevent further tax deferrals. As a result, taxes might increase just at the time when economic circumstances would make the added expense most burdensome. It is also possible that § 167 will be repealed, thus ending further tax deferrals. . . . If for any reason continued investment in utility plant at current levels should cease, or accelerated depreciation be denied, the financial stability of utilities might be jeopardized if some provision had not been made for the increased taxes that would result."

REGARDING the use of the temporary cash savings resulting from tax deferrals, the Illinois supreme court points out that the commission's order states that stockholders will not benefit because the funds could not be distributed as dividends or transferred to surplus. However, the court held that the commission was

MARCH UTILITY FINANCING

PUBLIC OFFERINGS OF ELECTRIC AND GAS UTILITY SECURITIES

Date	Amount (Mill.)	Description	Price To Public	Underwriting Spread	Offering Yield	Aver. Yield For Securities Of Similar Quality	Moody Rating	Success Of Offerings
		Bonds and Debentures						
3/15	$14	Central Illinois Light 1st 4¼, 1990 ..	99.61	.70C	4.90%	4.56%	Aa	a
3/16	15	Nor. Indiana Pub. Ser. 1st (s.f.) 4¼, 1990	102.31	.66C	4.73	4.56	Aa	b
3/18	4	Mississippi Power 1st 5s, 1990	100.00	.69C	5.00	4.89	A	b
3/29	20	Louisiana P. & L. 1st 5s, 1990	101.09	.79C	4.93	4.80	A	d
3/30	50	Niagara Mohawk Power Gen. Mtge. 4¾s, 1990	100.80	.69C	4.70	4.53	Aa	d
		Common Stocks—Offered to Stockholders					*Earn.-Price Ratio*	
3/14	2	Sierra Pacific Power	33.50	—	4.78	—	7.09%	—
3/28	3	Public Service of N. M.	28.25	.28N	3.54	—	5.35	—
3/29	2	Savannah Electric	24.50	1.30N	4.57	—	5.10	—

C—Competitive. N—Negotiated. a—The issue was reported well received. b—The issue was reported fairly well received. d—It is reported the issue sold slowly.
Source, Irving Trust Company

wrong in allowing these amounts to remain in the rate base. It stated:

> If this deduction is not made, the entire benefit of accelerated depreciation goes to the shareholders, since earnings produced by the prepaid funds —either interest if the funds are invested in securities or income if the funds are put into new plant facilities —will belong to the shareholders, who would thus receive a return on money they did not invest in the company.
>
> The commission's order therefore cannot stand. Funds generated by accruing deferred tax expenses, and any facilities financed out of those funds, must be excluded from the rate base. The earning power of this money then will either decrease consumer rates or increase service. The economic benefit to consumers over the life of any given asset should be about the same as if no accrual of deferred tax expenses were allowed, but it will be spread evenly over the useful life of the asset rather than being concentrated in the early years when depreciation rates for tax purposes are above normal.

The court's views on these various issues are largely quoted verbatim, so as to avoid editorial interpretations or conclusions on these debatable issues.

FINANCIAL DATA ON GAS UTILITY STOCKS

Annual Rev. (Mill.)			4/7/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Pipeline and Integrated Systems									
$ 5	O	Ala. Tenn. Nat. Gas	26	$1.20(k)	4.6%	$1.53Se	13%	11%	17.0	78%	40%
227	S	American Nat. Gas	60	2.60(L)	4.3	4.55De	12	7	13.2	57	40
99	A	Arkansas Louisiana Gas .	33	1.00	3.0	1.68De	38	50	19.6	60	50
55	O	Colo. Interstate Gas	48	1.25(R)	2.6	2.84Se	NC	8	16.9	44	24
465	S	Columbia Gas System ..	20	1.00	5.0	1.40De	1	6	14.3	71	43
7	O	Commonwealth Gas	6	—	—	.49De†	22	—	12.2	—	77
21	O	Commonwealth N. G. ...	21	1.00	4.8	1.64De	1	6	12.8	61	52
12	S	Consol. Gas Util.	23	.90(b)	3.9	1.51Ja	8	15	15.2	60	59
324	S	Consol. Nat. Gas	48	2.20	4.6	3.09De	D2	3	15.5	71	58
452	S	El Paso Nat. Gas	32	1.30	4.1	1.66De	3	11	19.3	78	17
55	S	Equitable Gas	35	1.75	5.0	2.54De	9	11	13.8	69	46
36	O	Houston N. G.	33	.80	2.4	1.52Oc	3	9	21.7	53	20
24	O	Kansas Nebr. Nat. Gas ..	46	2.00	4.3	3.51De	20	6	13.1	57	36
125	S	Lone Star Gas	38	1.80	4.7	2.39De	7	6	15.9	75	43
88	S	Miss. River Fuel	32	1.60	5.0	2.19De	12	5	14.6	73	52
31	S	Montana Dakota Util. ..	30	1.20	4.0	1.86De	13	5	16.1	65	30
29	O	Mountain Fuel Supply ..	24	1.20	5.0	1.77De	13	4	13.6	68	53
94	S	Natl. Fuel Gas	23	1.15	5.0	1.91De	30	6	12.0	60	52
159	S	Northern Nat. Gas	28	1.40	5.0	1.92De	19	7	14.6	73	32
43	S	Oklahoma Nat. Gas	26	1.24	4.8	1.96Ja	2	5	13.3	63	34
137	S	Panhandle East. P. L. ..	45	1.80	4.0	3.30De	18	9	13.6	55	38
16	O	Pennsylvania Gas	25	1.20	4.8	2.61De	23	4	9.6	46	59
226	S	Peoples G. L. & Coke ..	61	2.30	3.8	4.04De	33	8	15.1	57	43
33	O	Pioneer Natural Gas ..	44	1.60	3.6	2.81De	27	9	15.3	87	41
122	S	Southern Nat. Gas	36	2.00	5.6	1.59De††	D18	—	22.6	126	36
41	O	Southern Union Gas ...	24	1.12	4.7	1.40De†	D9	8	17.1	80	27
463	S	Tenn. Gas Trans.	36	1.65	4.6	1.93De	4	17	18.7	86	26
296	O	Texas East. Trans.	28	1.40	5.0	2.02De	D13	4	13.9	69	21
116	S	Texas Gas Trans.	32	1.40	4.4	2.33De	13	9	13.7	60	24
147	O	Transcont. Gas P. L.	20	1.20(b)	6.0	1.25De	7	6	16.0	96	20
354	S	United Gas Corp.	30	1.50	5.0	2.27De	D6	2	13.2	66	41
		Averages			4.5%		10%	9%	15.3	69%	

Annual Rev. (Mill.)		(Continued)	4/7/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Earn. Recent 5-yr. Aver.		Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Retail Distributors									
34	S	Alabama Gas	28	$1.60	5.7%	$1.85De	D15%	1%	15.1	88%	35%
57	O	Atlanta Gas Light	35	1.80	5.1	2.53Ja	—	6	13.8	71	39
3	O	Berkshire Gas	17	1.00	5.9	1.16N	D7	6	14.7	86	41
7	A	Bridgeport Gas	30	1.68	5.6	2.16De	D2	5	13.9	78	48
6	O	Brockton-Taunton Gas	19	1.00	5.3	1.30De†	10	18	14.6	77	46
89	S	Brooklyn Union Gas	26	1.20	4.6	1.67De	—	6	15.6	72	42
45	O	Central Elec. & Gas	24	1.20	5.0	1.83De	30	9	13.1	66	18
14	O	Cent. Indiana Gas	14	.80	5.7	.86De	D4	—	16.3	93	58
6	O	Chattanooga Gas	4	—	—	.26N	D40	—	15.4	—	44
15	O	Elizabethtown Gas	34	1.60	4.7	2.92Ja	D3	13	11.6	55	78
77	O	Gas Service	34	1.72	5.1	2.81De	22	8	12.1	61	35
9	O	Hartford Gas	44	2.00	4.5	2.61De	13	—	16.9	77	51
3	O	Haverhill Gas	28	1.60	5.7	2.02Ja	—	12	13.9	79	53
21	O	Indiana Gas & Water	22	1.00(b)	4.5	1.50Ja	D5	5	14.7	67	46
55	S	Laclede Gas	20	.90	4.5	1.10Se	D15	5	18.2	82	36
6	O	Mich. Gas Utils.	25	1.20	4.8	1.48Se	22	4	16.9	81	34
53	O	Minneapolis Gas	30	1.55	5.2	2.16De	28	—	13.9	72	43
17	O	Miss. Valley Gas	23	1.20	5.2	1.98Se	D15	7	11.6	61	34
6	O	Mobile Gas Service	24	1.10	4.6	1.25Se	D29	6	19.2	88	37
8	O	New Haven Gas	38	2.00	5.3	3.07De†	30	11	12.4	65	67
16	O	New Jersey Nat. Gas	21	.90	4.3	1.31F	NC	12	16.0	69	36
105	O	No. Illinois Gas	33	1.20	3.6	1.85Ja	26	14	17.8	65	50
10	O	North Penn Gas	11	.60	5.5	.91Je	13	10	12.1	66	60
20	O	Northwest Nat. Gas	18	.72	4.0	*1.31De	36	11	*13.7	55	36
285	S	Pacific Lighting	48	2.40	5.0	2.64De	D13	8	18.2	91	42
12	O	Piedmont Nat. Gas	15	.50	3.3	.76De	D17	—	19.8	66	27
2	O	Portland Gas Lt.	17	.75(m)	4.4	1.93De	D12	13	8.8	39	27
11	A	Providence Gas	10	.56	5.6	.65De	8	5	15.4	86	48
4	A	Rio Grande Valley Gas	4	.16	4.0	.32De	D6	7	12.5	50	46
5	O	So. Atlantic Gas	14	.80	5.7	.87De	D28	—	16.1	92	30
16	S	So. Jersey Gas	24	1.00	4.2	1.30De	10	13	18.5	77	51
36	S	United Gas Improvement	49	2.40	4.9	3.39De	8	10	14.4	71	49
63	S	Wash. Gas Light	46	2.24	4.9	3.50De	4	3	13.1	64	40
18	O	Wash. Nat. Gas	21	(g)	—	1.39De	111	20	15.1	—	38
12	O	Western Ky. Gas	17	.70	4.1	1.59De	18	3	10.7	42	41
		Averages			4.8%		4%	7%	14.8	71%	

RECENT FINANCIAL DATA ON TELEPHONE, TRANSIT, AND WATER STOCKS

Annual Rev. (Mill.)			4/7/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Earn. Recent 5-yr. Aver.		Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Communications									
$6,771	S	American T. & T. (Cons.)	90	$3.30	3.7%	*$5.19De	15%	4%	*17.3	64%	64%
377	A	Bell Tel. of Canada	47	2.20	4.7	2.39De	12	—	19.7	92	62
51	O	Cin. & Sub. Bell Tel.	90	4.50	5.0	5.57De	8	2	16.0	81	77
288	A	Mountain Sts. T. & T.	176	6.60	3.8	9.96De	23	7	17.7	66	69
380	A	New Eng. T. & T.	36	1.72	4.7	2.21De	7	7	16.3	78	59
937	S	Pacific T. & T.	29	1.14	3.9	1.42N	12	1	20.4	80	61
128	O	So. New Eng. Tel.	45	2.20	4.9	2.51De	D3	5	17.9	88	65
		Averages			4.4%		11%	4%	17.8	78%	
		Independents									
7	O	Anglo-Canadian Tel.	33	$1.20	3.6%	$3.45De	17%	21%	9.6	35%	44%
45	O	British Col. Tel.	45	2.20	4.9	3.04De	77	—	14.8	72	28
4	O	Calif. Inter. Tel.	14	.70	5.0	.92Se	10	NC	15.2	76	24
22	O	Calif. Water & Tel.	27	1.28	4.7	1.98Oc	NC	2	13.6	65	37

Annual Rev. (Mill.)		(Continued)	4/7/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
20	O	Central Tel.	22	.88(b)	4.0	1.72Se	14	5	12.8	51	33
5	O	Commonwealth Tel.	20	.90	4.5	1.47De	9	8	13.6	61	35
5	O	Florida Tel.	28	1.00	3.6	1.32De	32	4	21.2	76	40
1,080	S	General Tel. & Elec.	83	2.20	2.5	3.24De	11	10	25.6	68	43
22	O	Hawaiian Telephone	20	1.00	5.0	*1.26Fe	D1	4	15.9	79	49
8	O	Inter-Mountain Tel.	16	.80	5.0	.77De	D15	—	20.8	104	53
26	S	Rochester Tel.	26	1.00	3.8	1.54De	3	5	16.9	65	36
11	O	Southwestern St. Tel.	23	1.20	5.2	1.36Je	D14	—	16.9	88	37
13	O	Telephone Serv. of Ohio	150	2.80(q)	1.9	8.78De	22	8	17.1	32	30
42	O	United Utilities	39	1.45	3.7	1.95De	19	14	20.0	74	39
16	O	West Coast Tel.	24	1.20	5.0	1.54Se	30	—	15.6	78	32
276	S	Western Union Tel.	48	1.40	2.9	2.59De	31	15	18.5	54	87
		Averages			4.1%		17%	6%	16.8	67%	
		Water Companies									
		Holding Companies									
43	S	American Water Works	20	$ .80	4.0%	$1.46De	44%	—	13.7	55%	19%
		Operating Companies									
5	O	Bridgeport Hydraulic	36	$1.70	4.7%	$1.86De	6%	5%	19.4	91%	53%
17	O	Calif. Water Service	24	1.20(j)	5.0	1.73Ja	4	6	13.9	69	37
4	O	Elizabethtown Water	58	2.40	4.1	3.78De†	D3	11	15.3	63	59
11	S	Hackensack Water	49	2.40	4.9	4.14Se	NC	—	11.7	58	35
9	O	Indianapolis Water	25	1.00(S)	4.0	1.22De†	D4	5	20.5	82	36
6	O	Jamaica Water	40	2.20	5.5	3.26De	D2	17	12.3	67	28
5	O	New Haven Water	66	3.40	5.2	2.91De	D12	—	22.7	117	55
2	O	Ohio Water Service	28	1.50(b)	5.4	1.74De	14	—	16.1	86	33
9	O	Phila. & Sub. Water	50	1.60(e)	3.2	2.75Je	D7	—	18.2	58	27
3	O	Plainfield Un. Water	21	1.10	4.8	2.31De	44	12	9.1	43	66
5	O	San Jose Water	34	1.30	3.8	2.27F	14	10	15.0	57	41
11	O	Scranton-Springbrook	23	1.20	5.2	1.63Se	4	4	14.1	74	25
7	O	South. Calif. Water	19	1.00	5.3	1.34De	11	8	14.2	75	36
4	O	W. Va. Water Service	22	.80(d)	3.6	1.80De	23	—	12.2	44	18
		Averages			4.6%		7%	6%	15.3	70%	
		Transit Companies									
21	O	Baltimore Transit	8	$1.00	12.5%	$1.02De	72%	11%	7.8	99%	45%
12	O	Cincinnati Transit	7	.30	4.3	.91De	193	—	7.7	33	56
66	S	Fifth Ave. Lines	16	.50	3.1	.23De	—	—	—	—	65
322	S	Greyhound Corp.	22	1.00(p)	4.5	1.81De	D5	7	12.2	55	62
26	S	Nat. City Lines	27	2.00	7.4	2.22De	33	—	12.2	90	92
13	O	Niagara Frontier Trans.	11	.60	5.4	.10De†	D87	—	—	—	67
20	A	Pittsburgh Rys.	12	.25	2.0	—	—	—	—	—	90
6	O	Rochester Transit	6	.40	6.7	.86De†	34	9	7.0	47	100
21	O	St. Louis P. S.	11	1.00	9.1	.77De	13	—	13.0	130	93
13	S	Twin City R. T.	8	—	—	.59De	146	—	13.6	—	65
19	O	United Transit	7	.70	10.0	.89De	18	—	7.9	79	55
		Averages			6.5%		70%	2%	10.2	76%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. NC—Not comparable. NA—Not available. D—Decrease. *On average shares. **Includes tax savings from accelerated depreciation. (a)—Adjusted to eliminate 13 cents per share of nonrecurring tax savings. (b)—Also 20 per cent stock dividend January 15, 1960. (d)—Also 1 per cent stock dividend quarterly. (e)—Also 3 per cent stock dividend January 7, 1960. (g)—Five per cent stock dividend April 10, 1959. (j)—Also 5 per cent stock dividend March 19, 1959. (k)—Also 20 per cent stock dividend March 9, 1959. (L)—Also 10 per cent stock dividend June 10, 1959. (m)—Also 10 per cent stock dividend January 15, 1960. (n)—Excludes profit realized on sale of Los Angeles Transit $3.81 per share. (p)—Also 5 per cent stock dividend June 30, 1959. (q)—Also 3 per cent stock dividend December 31, 1959. (R)—Also 40 per cent stock dividend June 13, 1960. (S)—Also 10 per cent stock dividend March 31, 1960. †December, 1958. ††Excludes profit on sale of securities of 26 cents per share.

What Others Think

Impact of Inflation on Public Utility Regulation

THE *California Management Review* (Volume I, No. 4, 1959) has published a study made by Fred P. Morrissey, on the subject of "Inflation and Public Utility Regulation." Mr. Morrissey is an associate professor of business administration at the University of California and readers of the FORTNIGHTLY will recall a number of his previous articles on finance, business economics, and the public utility industry.

Mr. Morrissey states that few people realize the scope of the public utility industries in the United States. To illustrate this size he notes that, excluding transportation, utility assets constitute 20 per cent of the total assets of all nonfinancial corporations in the United States. In the past few years public utilities have been consuming 40 to 50 per cent of all new corporate security issues —about $5.8 billion in 1958. Total revenues of public utility companies in 1958 amounted to some $21.6 billion. These few examples indicate that the business community should pay close attention to the public utilities because of the huge segment of the national economy which they represent.

The question, "Have utility stockholders been able to keep pace with inflation in the postwar period?" is posed by Mr. Morrissey. A study of various Moody's stock indexes indicates that the utility industry (with the exception of American Telephone and Telegraph) has more than kept pace with inflation from a stockholder's viewpoint.

THIS conclusion, Mr. Morrissey states, is based upon the assumption that the study is correct and that earnings were accurately and reliably reported. The latter assumption, he believes, is a "debatable one" since a major expense item in utility rate making is depreciation. As it is commonly determined—on the original cost of the physical plant—it approaches 10 to 12 per cent of the operating revenues. Depreciation is of greater importance to the public utilities than to industrial companies for a number of reasons. Mr. Morrissey states:

> . . . First, the life of a utility plant is typically much longer, and hence, as inflation continues, the dollars recovered through depreciation expense are of depreciated value in terms of their original purchasing power. Second, utility fixed plant and equipment make up a much greater proportion of total assets for utilities than for most industrials. Third, industrials have had ac-

cess to the benefits of § 167 of the Income Tax Code of 1954, commonly referred to as liberal depreciation, whereas the utilities have not been able uniformly to acquire for their stockholders the benefits of this tax deferral (or, possibly, forgiveness). Finally, it is a fact that nonregulated industry has been able to rely heavily on retained earnings and perhaps completely offset any understatement of depreciation.

MR. MORRISSEY observes that the concept that total revenues should cover total resources consumed has been accepted in a number of countries. However, the United States has been reluctant to take on this theory because of the possibility of increased rates to the consumer in the short run. A number of public ownership cases cited indicate that such publicly owned electric utilities have been able to augment normal depreciation by appropriating surplus—the excess of revenue over customary costs—without specifically increasing rates. The telephone section, the author notes, has not been so fortunate. Mr. Morrissey believes that another reason for the lack of acceptance of this policy in the United States is the uncertainties of the cost of plant adjusted for purchasing power, technology, efficiency, and such related factors, when replacement cost is considered.

The federal income tax in this country also militates against any general acceptance of economic depreciation. Regarding this federal policy Mr. Morrissey states:

> . . . Therefore, regulatory commissions are free to claim that the allowance of extra depreciation expense would require a contribution by ratepayers in excess of 200 per cent of the net increase in depreciation expense over original cost depreciation. While there is political merit in the commissions' attitude, there may be little economic merit.

IN spite of this it is noted that several decisions have been made which favor depreciation expense adjusted for price level changes. Among those is the 1957 decision of the Indiana Public Service Commission which authorized the Indiana Telephone Corporation to "accrue depreciation upon the basis of the cost of its property, repriced in current dollars; and [it should] file its annual report with this commission showing depreciation expense accrued on the basis of original cost and on the basis of cost repriced in current dollars . . . " (16 PUR3d 490, 498.)

Concerning the issue of rate base the author concludes that if one accepts "economic depreciation" as a proper expense it probably follows that a reproduction cost rate base must be used. However, the following difficulties are noted: (1) The uncertainty associated with the determining of reproduction cost or fair value. (2) The adequacy of earnings is more important than the method of arriving at them.

It is Mr. Morrissey's contention that the debate over a proper rate base has been overemphasized in utility rate making. He notes that the composition of any rate base is subject to wide interpretation despite specific definitions which are often arrived at by economists and textbook writers. It is contended that there is agreement that net book cost includes plant in service less depreciation reserve but considerable leeway is encountered in determining whether materials and supplies, working cash, and such should be added in.

The real test is not what rate base should be used, rather it is the end

result—the adequacy of earnings and service. The author's analysis of the status of equity investors in electric utilities indicates that they have kept pace with inflation in terms of earnings and market price. In addition, the utilities have been able to raise billions of dollars of new capital without destroying the value of their securities. This has been possible, at least in part, because many commissions have abandoned the strict "original cost" rate base in the face of continued inflation. There appears to be a tendency to anticipate plant expansion and higher price levels, by including construction work in process, use of a year-end rate base, or the use of a future test period. The author points out that the states of Illinois, Pennsylvania, Ohio, and Iowa recognize fair value in the rate base, and equity holders, therefore, have protection against inflation. California has not taken any direct action on this matter but it does recognize the effect of "attrition" on earnings as new high-cost expansion is added.

The electric industry has benefited from operating economies in the nature of increased customer usage (much of it at off-peak periods), and various technological advances permitting greater operating efficiency. The telephone industry, on the other hand, has not benefited in these areas and has suffered because of the large wage problem. Thus, the electric companies have not been put in the position of asking for repeated rate increases.

In conclusion Mr. Morrissey states that the final result of utility regulation is to produce a reasonable level of earnings for the company, ensuring that the investors' property is being reasonably compensated and that the consumer is not exploited through high prices. The community, too, must be given adequate service and the full cost of providing the service should be recovered and the stockholder should be permitted some protection from inflation. The author states:

> . . . Today this inflation protection appears to have been provided, but the accounting for the actual quantity of resources utilized is in doubt. The concern over the possible understatement of depreciation as an expense is not only a concern for the investor's capital; rather, it is due to the fact that revenues may not be adequate to cover total *real* costs of providing the service. Hence, there may result a misallocation of economic resources because utility services are being offered below their real cost.

Mr. Morrissey's study indicates that the returns to utility stockholders have generally been adequate to keep pace with inflationary trends in the economy. He does raise a question, however, of the possibility of reported earnings being illusory because of inadequacy of depreciation allowances.

—C.M.B.

Direct Dialing Speeds Hotel Service

Two great hotels in Pittsburgh, Pennsylvania, the Penn-Sheraton and the Pittsburgh Hilton, are among the first of their respective chains to install a direct dialing service for their guests. Patrons of the hotels now can dial their room phones to obtain any inside services and can as well dial outside numbers directly without going through the switchboard. Long-distance calls, however, still must be placed through the hotel operator.

This is the gist of a "dial age" story

that appeared in the March, 1960, issue of *The Telephone News,* employee magazine of The Bell Telephone Company of Pennsylvania. The article points out that this new timesaving service did not just happen in these Pittsburgh hotels. It required careful planning which began way back in 1956. Actual service did not commence until November of 1959. Many months of study were involved. Paper work had to be analyzed. Switchboard operation required intensive study. Then the engineering team took over and implemented the ideas with a practical operation.

ACCORDING to the article, the Penn-Sheraton general manager, Charles T. Carey, praises the system as being "of great service to the hotel" and having "improved overall efficiency." Charges for local calls that guests make are recorded automatically on a message register near the cashier's desk. Thus checkout time is expedited because it takes but seconds for the cashier to ascertain what calls any departing guest has made. Long-distance time and charges on calls are available immediately, too, for they are teletyped to the hotel by the telephone company right after any call is made.

In the Penn-Sheraton, guests may dial other guest rooms, too, using a special code system. The hotel has 1,600 telephones in 1,300 rooms.

EACH guest room telephone in the Hilton incorporates a message-waiting lamp which lights to inform guests, returning to their rooms, that the hotel attendant has a message. The direct dialing setup in the two hotels has naturally decreased the number of calls going through their switchboards, but incoming calls are still big business. The net effect is increased guest satisfaction because of the speed and efficiency with which calls for hotel service and information, as well as outside communication, can be accomplished.

These two new direct dial systems are a splendid example of what traditional telephone teamwork and progressive management can achieve in improving service not only for hotel guests, but for hotel personnel as well.

Direct Conversion of Heat to Electric Power

AN explanation of some of the projects being undertaken to convert heat into electric power by the electrical industry was given in a talk at the annual meeting of the Southeastern Electric Exchange in Boca Raton, Florida, last month by Mark W. Cresap, Jr., president of Westinghouse Electric Corporation.

As part of the research program of the sixties, he said, the industry finds itself standing on the threshold of still newer methods of power generation. Rapidly developing, he said, is a complex technology in the direct conversion of heat to electricity.

Cresap said there are four most promising methods of conversion which are: thermoelectric generation, magneto-hydrodynamics, thermionic generation, and the fuel cell.

Thermoelectric conversion consists of applying heat to semiconductor materials from which current is generated. Cresap stated:

> . . . We are currently building several thermoelectric generators under contract to the government. . . .By 1970, or thereabouts, we expect to have developed the know-how to build a gen-

erator up to 100 megawatt sizes that you can buy for $80 a kilowatt. It would have an overall efficiency on the order of 20 per cent and would be nuclear fired.

The problems facing the development of magneto-hydrodynamics are formidable, Cresap reported. To make it practicable, new materials, he said, must be developed that will withstand the abnormally high temperatures the process requires—about 3,500 degrees Fahrenheit.

CRESAP said he doubts that this method of generation will be developed to any degree in the near future. Perhaps in ten or twenty years something will be perfected, he predicted, stating:

> The third method is that of thermionic generation in which heated electrons are used to produce electric power.
>
> Because of its high-temperature operating requirements, we see this method best applied for commercial generation of power as a topping unit for a nuclear steam plant, since it could take advantage of the high temperatures available.
>
> We are now generating enough thermionic power in our laboratories to light a small lamp and run a tiny motor. Within two or three years we will have some interesting working devices, and we expect to be putting our energy at least in the 100-watt range.

The fuel cell, Cresap explained, is basically an electric battery, but one which uses relatively inexpensive fuels, fed continuously into the system. He said:

> Low-temperature fuel cells, using oxygen with hydrogen or other special fuels, are today's most publicized fuel cells. In spite of relatively high fuel costs, these cells have been given priority development in America because of projected military application, such as those in remote locations where the problem of transporting fuels is more important than fuel cost. It seems fairly certain that they will begin to find small-scale special purpose uses within the next five years.

If the problems are solved, Cresap declared, as they may be within ten to twenty years, we may look to the high-temperature fuel cell to play a significant rôle in the large-scale generation of electric power.

FROM a long-range point of view all of these generation methods offer great promise—higher efficiencies, for one thing, than present turbine generator systems. And all have an inherent potential for lower capital cost per kilowatt installed. There will be no swift or spectacular change from today's methods of generation and the heat conversion processes. Present generators will remain the dominant power source for many years.

Cresap emphasized that the electric industry was playing for high stakes in its research of heat conversion methods. For just a saving of one mill in generating costs, he said, would have a profound impact on the industry as it would mean savings twenty years from now of $2 billion annually.

He said there is no question that we can overcome the technical difficulties involved in perfecting heat conversion methods. After that is accomplished the success of the electric industry depends on public recognition and national appreciation of what has been done.

The March of Events

Superheat Reactors for Nuclear Power

FROM studies conducted by General Electric Company it is indicated that larger superheat reactors might offer sizable potential savings in nuclear power costs. Engineers said fuel cycle costs of superheat reactors, together with probable capital cost savings for large superheat units, point to an overall reduction in the present cost of nuclear power of about two-third mills per kilowatt-hour.

While this may seem small, this much potential saving could be very important in areas where the difference now between cost of nuclear power and that produced by conventional power stations is relatively small.

Nuclear power costs are now estimated in the range of 7.5-8.5 mills per kilowatt-hour, as opposed to about 7 mills per kilowatt-hour for steam-generating plants, in areas where the cost of conventional fuel—that is, oil and coal—is considered somewhat expensive.

Before the potential savings in superheat reactors can be definitely ascertained for large nuclear plants, considerable operating experience must be obtained on fuel lifetimes and on the effect of fuel failures.

Largest Steam Power Plant In World

PARADISE steam plant, the huge electric-generating station which the Tennessee Valley Authority is building on the fringe of its area in west Kentucky, will be the largest of its kind in the world upon completion, it is reported. It will have an initial capacity of 1.2 million kilowatts and an ultimate capacity of 2.4 million kilowatts. Its first two units will be expanded ultimately to four units, each with a capacity of 600,000 kilowatts.

The world's largest existing steam plant is the one at Kingston, Tennessee, which has a total capacity of 1,440,000 kilowatts.

Cost of the Paradise plant has not been revealed. But the first unit will cost more than $100 million, with the final investment in the plant something like four times that figure.

Connecticut

Atomic Leadership Urged

THE governor of the state, Abraham Ribicoff, told the Connecticut Industrial Radioisotope Workshop at the New Haven Lawn Club recently that the creation of a nuclear research center in Con-

necticut might help make it a national leader in atomic energy.

He also announced the appointment of Arthur V. Peterson, a management consultant, as executive co-ordinator of atomic energy development. Peterson will consult with the state's utility companies and representatives of other industries, education, and medicine, on the feasibility of establishing the new nuclear center.

Ribicoff said atomic energy represents "one of the greatest promises for the growth of Connecticut industry—and for the improved competitive position of the state in the area of economic development." The Connecticut governor also predicted that his state would be ready to take advantage of nuclear-produced power when this kind of energy becomes economically competitive.

Kentucky

Asks Phone Rate Boost

THE General Telephone Company of Kentucky has applied to the state public service commission for permission to set higher rates. The company asked for an increase amounting to $1,989,942. For the average telephone subscriber in the 309 communities served by General, the increase would amount to $1.80 a month.

Higher costs for construction and maintenance, wages, taxes, and other commodities were given as the reason for the asked-for boost by company President H. J. Huether, Jr. He also said the company needs the additional revenue to meet continued demand for expanded and improved service. Huether said inflation has hit the telephone company just as hard as it has hit any other business or individual. He pointed out that General had increased its investments in telephone plants during 1958-59 by more than $16.5 million.

Louisiana

Gas Price Boost OK'd

IN May home owners and industrial plants in the New Orleans area will face a hike in their gas bills. How much of an increase has not yet been determined. The increase stems from an order by the state public service commission which has authorized United Gas Pipe Line Company to raise its selling price to distributors. Officials of New Orleans Public Service Inc. and Louisiana Gas Service Company stated the rate boost will be passed along to consumers.

Only 62 per cent of the request asked for by United Gas was granted by the commission. The company plans to appeal the decision.

If the full amount asked for by United Gas had been allowed, the average cost to individual gas users would have amounted to only $2.50 a year more.

In the decision finally made the commission allowed United Gas to increase its rates to correspond with its cost plus 5.5 per cent overall rate of return, it was reported.

Michigan

Long-distance Phone Rates Upped

THE Michigan Public Service Commission has approved a rate schedule that will give four independent telephone companies more money on long-distance calls within the state. The new rates will make toll charges conform with those au-

thorized for Michigan Bell Telephone Company under a recent $4 million rate increase.

The independent companies are General Telephone Company of Muskegon, which has about 240,000 phone customers, and Moore Telephone System, Caro Ontonagon County Telephone Company, and Pickford Telephone Company.

Commissioner Thomas M. Burns estimated that the schedule would mean an additional $36,000 annual revenue for General Telephone. He said the increase in income for the other companies would be negligible, amounting to only a few thousand dollars.

Pennsylvania

Gas Rate Boost Asked

THE Pennsylvania Public Utility Commission has been asked by Peoples Natural Gas Company of Pittsburgh to let it increase its rates by $1.4 million to its 261,000 customers in the western part of the state. Reason for the increase sought is a boost in wholesale gas costs.

In the last three years rate increases have been granted to Peoples Gas totaling $5.3 million. Another $898,000 was approved in February to cover the state's 14-mill tax on utility companies. H. Donald Borger, president of the Pittsburgh gas utility, attacked the FPC in regard to allowing rate increases. He said, "The procrastinating tactics of the FPC in determining proper gas rates chargeable to interstate suppliers is imposing an unreasonable and entirely unnecessary strain on the Peoples Gas, a distributing company, and its customers. Such stalling demonstrates inexcusable inefficiency."

Approves Gas Rate Boost

THE public utility commission has allowed an increase in natural gas rates to Equitable Gas Company of Pittsburgh in an estimated amount of $858,000 annually, effective April 5th, but suspended for investigation a second raise of $3,299,000. The increase is designed to offset a corresponding increase in cost of gas bought wholesale from southwestern suppliers. It will add 1.1 cents per thousand cubic feet to the bills of 238,478 customers in Allegheny, Armstrong, Butler, Greene, Indiana, Washington, and Westmoreland counties.

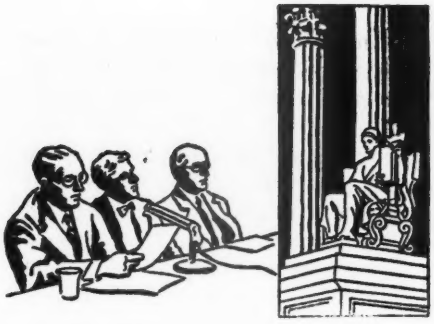
The second raise of $3.2 million suspended by the commission was an amount the company said it required to help it meet operating expenses. The commission said Equitable failed to provide sufficient supporting data. It is hoped adequate rate facts will be provided at subsequent hearings in the case.

Washington

Approves Rate Rise

THE state public service commission has authorized Puget Sound Power & Light Company to boost its rates by a total of $3,634,000 a year. The increase, according to the commission, will allow Puget a 6.25 per cent rate of return on its investment.

The amount approved was $295,800 less than the company had requested. About $2 million of the increase will go for taxes, according to the commission, leaving a net increase of $1,678,037. This hike will amount to a boost of about three cents a day for each of Puget's 207,000 customers. The company serves part of Grays Harbor, Island, Jefferson, King, Kitsap, Kittitas, Lewis, Pierce, Skagit, Thurston, and Whatcom counties, mostly in suburban and rural areas.



Progress of Regulation

Trends and Topics

Recent Views on Stock Option Plans For Key Personnel

RESTRICTED stock option plans, offering substantial tax advantages over a straight salary increase, afford many companies an attractive means of remunerating key personnel. It is not surprising that public utilities have proposed to use such plans along with unregulated companies, for both must compete in the market for competent personnel. Some regulatory authorities have ruled that utility companies may offer stock option plans to key employees, while other regulatory authorities have disapproved them. The matter was discussed in PUBLIC UTILITIES FORTNIGHTLY, August 18, 1955, at page 281. More recently, it has been the subject of several important commission decisions.

Statutory Authority Held Lacking

In denying the petition of Brooklyn Union Gas Company for authority to sell 75,000 shares under a restricted stock option plan, the New York commission (one commissioner dissenting) asserted that "the device of a stock option plan to give utility personnel remuneration subject to a lesser tax is not adaptable to the public utility situation" (24 PUR3d 445). The commission thought it would be of questionable propriety to approve a stock issue which would implement a plan to permit optional purchase and sale by utility personnel of stock which determines control of the utility, where such purchase and sale would depend upon personal benefits that might accrue to each individual. The situation in the extreme, it was said, would lend itself to manipulation.

The commission criticized the stated intent of the plan to secure and retain qualified employees by increasing their proprietary interest in the company. This interest would not necessarily be the acquisition and retention of stock in the company, for options would not be exercised if the market price of the stock declined below the option price. To benefit the participant in the manner intended, the stock must be sold and then the proprietary interest would

terminate. Despite a showing that the company had lost important personnel because it lacked a stock option plan, the commission declared that "the disadvantages of a stock option plan for a regulated utility far outweigh the advantages."

Upon appeal, the court confirmed the commission's refusal to approve the proposed stock issue, but for different reasons (29 PUR3d 388). The reasons given by the commission, said the court, go beyond the administrative function and enter the field of management. While the court recognized that the proposed plan "may well be . . . an excellent management proposition," it held that the proposed issuance of stock under a restricted option plan was simply outside the strict capital purposes specified in the New York Public Service Law and hence prohibited.

The Public Service Law authorizes security issues for the acquisition of property, plant construction and improvements, maintenance or improvement of service, discharge or refunding of obligations, and reimbursement of the treasury for money actually expended for the foregoing purposes except service maintenance and replacements. The commission is explicitly denied power to authorize securities for purposes other than those enumerated, and it must state that the purposes of an authorized issue are not in any part reasonably chargeable to operating expenses or to income.

Sharing of Market Price Risk

The Georgia commission refused to authorize South Atlantic Gas Company to sell 30,000 shares of stock under an option plan for selected employees, though it would allow the sale pursuant to an irrevocable subscription (13 PUR3d 230). The question, as the commission saw it, was whether the overall arrangement would produce the lowest cost of capital to the company. Cost of capital, the measure of fair rate of return, declines for a particular security as the price of that security increases. Therefore, the commission reasoned, a regulated public utility should market its securities at the best price obtainable in order to insure the lowest cost of capital.

The proposed option price of the stock was $12.50 a share. The proceeds would be used to pay notes to be issued to obtain capital for construction of facilities. This arrangement met the statutory requirement for a showing of need for capital funds for the acquisition of property, for construction and equipment, or for improvement of facilities. Market quotations for the company's common stock indicated a bid of $12 per share and an asking price of $13.25.

But the option device was unsatisfactory. The commission pointed out that if the market price of the stock is $12.50 a share or less when the option matures, the sale would not take place, and the company would receive only the lower current market price for such stock as might be sold. If the market price is more than $12.50, the sale would be made, though the company would receive only $12.50 a share irrespective of the market price at the time of the sale.

The commission decided to authorize the proposed stock sale at $12.50 a

share on an irrevocable subscription basis for future delivery on future payment, or on a reasonable time payment plan under which the sale would be irrevocable, since the risk resulting from a different market price would thereby be equally shared by the purchaser and the company.

Incentive and Capital Purposes Approved

The Indiana commission, on the other hand, had no difficulty in authorizing Panhandle Eastern Pipe Line Company to issue 200,000 shares of common stock under a stock option plan for key employees (19 PUR3d 205). The commission observed that one of the purposes of the plan was to provide an opportunity for employees to invest in the company. This would create additional incentive for them to remain with Panhandle and to increase their efforts on the company's behalf, with the result that Panhandle would be better able to continue to render dependable service. A further purpose of the plan, it was noted, was to obtain capital from time to time, which would be placed in the general funds of the company for use in the acquisition of property, material, or working capital, or used in construction of facilities, discharge of obligations, or reimbursement of the treasury for money already expended for such purposes.

The fair value of the plant and property of Panhandle was in excess of the aggregate amount of its long-term indebtedness and stock, including the proposed issue of 200,000 shares. The commission expressly found that the proposed issue pursuant to the stock option plan "is in the best interests of Panhandle, is beneficial to Panhandle's maintaining the quality of its operations and service at a high level, and is in the public interest."

Similarly, the Ohio commission (January 11, 1957) authorized the Cleveland Electric Illuminating Company to offer 200,000 shares of common stock to selected employees under a restricted stock option plan. The proceeds would be used to reimburse the company treasury for capital expenditures.

Review of Current Cases

Average Net Plant Rate Base and Assumed Debt Ratio Adopted in Telephone Rate Proceeding

AGAINST a claim for an 8 per cent rate of return, the Michigan commission allowed Michigan Bell Telephone Company 6.62 per cent on an average net plant rate base of $582 million. Noting that this rate is above the current cost of capital, the commission indicated that it would be adequate to maintain the company's financial standing and attract additional capital on reasonable terms.

In adopting an average net plant rate base, the commission pointed out that it does not have the infirmities inherent in other bases, such as reconstruction cost new or trended original cost, "which rely on varying estimates of possible present or future costs, or upon the application of index numbers to plant units which may be obsolescent." The adopted base eliminates "observed" depreciation reserve and

correctly reflects the company's investment in assets devoted to public service. It also correctly weighs the proportion of the test period during which these assets were available, and allows for accrued depreciation at scientifically determined rates, said the commission. Working capital of $7 million was included.

Expenses Reduced

In keeping with its past position, the commission excluded charitable contributions from expenses. Likewise, dues in service clubs and chambers of commerce, "without any clear benefit in providing telephone service," were excluded.

The staff urged a reduction in test period expenses because the profit rate of Western Electric Company, Michigan Bell's supplier, exceeded the rate of return authorized for Michigan Bell in the last rate order. Both companies are subsidiaries of American Telephone and Telegraph. Michigan Bell argued that Western's prices were reasonable and contended that it would be improper to reduce a cost actually incurred. The commission decided that the customers were "entitled to protection against excessive profits," and reduced expenses as requested by the staff.

Finally, because of Michigan Bell's low debt ratio, income tax expense was reduced, for the purposes of this rate proceeding, to reflect the 35 per cent debt ratio of the Bell system.

Dissent Urges Rate Reduction

Commissioner Lee, dissenting, would impose a substantial reduction in rates instead of granting an increase. He attacked the commission's "actual-use" basis of intrastate-interstate separation allocations of investment and expenses as being unrealistic. Toll call service should be weighed more heavily than local call service in making the allocations, he declared.

In calculating the income available for return, this commissioner would use a debt ratio of 40 per cent. He noted that the commission has historically found that income taxes paid on a capital structure containing less than 40 per cent debt capital were an avoidable expense.

The commissioner urged that an average capitalization rate base be used, including only assets provided by investors and excluding certain "generated" funds. "The company generates funds by recording liabilities currently which will not be paid until many months later and these funds are sent to its parent company and actually reduce the investment originally made by AT&T." He indicated that the parent company should not be allowed to earn a double return "on money it now holds and in fact has invested, not in Michigan Bell, but in government securities." An average capitalization rate base would obviate the necessity of determining a separate allowance for working capital.

Commissioner Lee, along with the majority, disapproved the idea of relying on the experience of AT&T in raising common stock capital as an important guide in determining cost of capital and rate of return for the operating company. Observing that AT&T has in recent years made all common stock sales through rights to existing stockholders, he noted that the parent corporation has not had to give serious attention to market prices and has substantially underpriced its stock issues. It would be unreasonable to use inflated yield figures based on self-regulated prices as a basis for determining cost of capital and rate of return. The staff's suggested rate of return of 6.47 per cent on an average capitalization rate base (which would afford appreciably less

revenue than the majority's allowance) would be more than ample, said Commissioner Lee. *Re Michigan Bell Teleph. Co. T-252-60.1, February 18, 1960.*

Injudicious Opinions Expressed by Presiding Examiner Held Insufficient to Warrant Disqualification

THE Federal Power Commission denied a motion by interveners for disqualification of the presiding examiner in a proceeding involving sales by El Paso Natural Gas Company in southern California, even though the examiner had expressed preconceived opinions about important matters in issue before the interveners had been heard. The interveners complained that they would be deprived of a fair and impartial hearing because the examiner had prejudged the issue of market requirement and marketability.

The commission agreed that the statements made by the examiner were "gratuitous, unjustified, and injudicious" but ruled, nevertheless, that the indiscretion was not good cause for disqualification. The examiner performs functions for the commission, such as taking testimony, passing on the admissibility of evidence, and otherwise conducting hearings so as to make adequate records upon which a decision can be made.

But the final decision must be made by the commission, not the examiner. The interveners had not yet been actually deprived of the right to follow relevant and material lines of inquiry, it was noted. Nor had relevant and material evidence offered by them been rejected. The commission did not believe, therefore, that the interveners would be deprived of a full and fair hearing by having the same examiner continue to conduct the hearings in the case. *Re El Paso Nat. Gas Co. et al. Docket Nos. G-16235 et al. February 18, 1960.*

Interstate Natural Gas Producer Service Abandoned In Favor of Sales for Intrastate Use

THE Federal Power Commission authorized a natural gas producer, P. R. Rutherford et al., to abandon service to United Gas Pipe Line Company even though the producer had contracted to sell all of its gas to an intrastate pipeline, Industrial Gas Supply Company, at a substantially higher price. The commission found that there was no longer any public need for this service to United.

The contract with United was made in 1946 and provided for termination in ten years. Although it expired in 1956, Rutherford continued to make service available. While this gas amounted to less than one-tenth of one per cent of the pipeline's supply, United had never taken substantial amounts from Rutherford, considering how much was available, and had taken none at all during the past two years. In 1951 the producer had entered into a contract with Industrial, agreeing to sell this intrastate purchaser all of its gas upon termination of the interstate contract.

Examiner Disapproves Abandonment

The examiner had denied the abandonment application, finding that Rutherford had abandoned the sale in violation of the Natural Gas Act and was now attempting to take advantage of such violation. He decided that the abandonment was for the purpose of obtaining higher prices

and avoiding Federal Power Commission jurisdiction over prices. He also indicated that allowing the abandonment would set a bad precedent for other producers. Finally, he claimed that Rutherford had not shown clearly that United did not need this gas.

Gas Not Needed by Interstate Buyer

The commission, reversing the examiner, concluded that the public convenience and necessity permitted the proposed abandonment. It found no wrongdoing by Rutherford. The producer had entered into the intrastate contract in good faith before federal jurisdiction attached to producer sales and at a time when it needed a new market to protect its wells from drainage, because of United's failure to take the available amounts of gas. Furthermore, the producer had continued to make gas available to United after termination of the contract, in compliance with the Natural Gas Act.

The commission found no evidence that the intrastate contract was made as a subterfuge to circumvent the statute. It believed that it should honor the terms of such a contract where they appear to be consistent with the requirements of public convenience and necessity. The fact that Industrial is an intrastate pipeline serving consumers in Texas only does not preclude a showing that its sales are in the public interest, said the commission. Its need for gas was clearly shown.

The commission held that the evidence in this case established a lack of need for the gas on the part of United. A further inference in this direction was drawn from the fact that United, though properly served, had not participated in this abandonment proceeding. The commission observed that it would impose an unreasonable burden on Rutherford to require it to prove in detail the gas requirements of United's system.

Views of Concurring Commissioners

Commissioner Connole, concurring, thought abandonment should be allowed on the ground that the need which had given rise to the producer's certificate had ceased. On this determination of the case, it would be immaterial whether the needs of the intrastate buyer were greater than those of the interstate buyer.

Commissioner Hussey, also concurring, took the view that the facts plainly showed that the gas was not needed by United and that public convenience and necessity required the gas to go to the intrastate market. *Re P. R. Rutherford et al. Docket No. G-10922, February 17, 1960.*

Gas Producer Rate Proceeding Dismissed on Comparison of Revenues with Service Cost

THE Federal Power Commission dismissed a § 5(a) Natural Gas Act rate proceeding against Western Natural Gas Company, a producer, on the ground that the company's total jurisdictional revenues for the test year were not unreasonable when compared with its total jurisdictional cost of service for the same period. Western supplies gas to Tennessee Gas Transmission Company. The proceeding had been instituted on complaint by distributing companies, the Tennessee commission, and other political bodies. A staff motion to dismiss was either concurred in or not objected to by the other parties.

The question whether Western's individual rates were just and reasonable was

not reached. The commission took the position that a decision on this question was not administratively justifiable or necessary under the circumstances of the case. Thus, the commission pointed out, dismissal of the case did not determine that Western's present rates should be continued in effect. The order of dismissal would not prejudice any action the commission might later take in proceedings pending in another docket. And it would not be construed as a determination with respect to the effective legal rates for jurisdictional sales by Western. *Re Western Nat. Gas Co. Docket No. G-9281, January 29, 1960.*

Commission Lacks Jurisdiction to Hear Co-operative's Protest against Encroachment by Electric Company

An electric co-operative is not a public utility, the New Mexico supreme court held in upholding a commission decision. In a proceeding by an electric company for authority to construct facilities and provide service to an industrial site in an electric co-operative's territory, the commission had allowed the co-operative to intervene only for the purpose of offering evidence relating to public convenience and necessity. The commission had ruled that it had no jurisdiction over the co-operative and could grant it no affirmative relief. The authority requested by the company was granted.

The court regarded as determinative the issue whether the co-operative was a public utility within the meaning of the state public utility act. The statute gives the commission jurisdiction to determine cases of territorial encroachment by one public utility upon another. Other provisions in the statute make it clear that in order for a business to be a public utility, it must, among other things, be ready to serve the public generally.

An electric co-operative's statutory power to serve is strictly limited. It can supply energy to its members and to certain others. The court observed that the co-operative failed to meet the test of a public utility in that it did not profess to, and could not, serve the public generally. Nor could it be compelled to serve the public or a specific individual who might request service. *Scorro Electric Co-op., Inc. v. Public Service Co. of New Mexico et al. 348 P2d 88.*

No Private Right to Damages for Unauthorized Interstate Motor Carrier Operation

The United States district court granted a motion to dismiss railroad counterclaims in a civil antitrust suit brought by a motor carrier. The motor carrier had charged that the railroads cited had conspired, in unreasonable restraint of trade and commerce, to injure or destroy its business and to acquire a monopoly of land transportation. The railroads had counterclaimed for damages, alleging interference with franchises resulting from interstate operation by the motor carrier in excess of its certificated rights. The general rule of tort law, pointed out the court, is that one claiming damages for violation of a statutory duty must show that he belongs to the particular class that the statute was designed to protect and that he has suffered the particular harm that the statute was de-

signed to prevent. Some of the western railroads which had contended that they had suffered damages because of the motor carrier's violations of the highway speed and sleep regulations were held to be outside the class the statutes were designed to protect. The safety statutes were for the protection of the public at large from highway accidents and not for the protection of competing carriers from loss of business.

Some Common-law Remedies Preserved

The Motor Carrier Act of 1935, said the court, did not intend to destroy all common-law remedies. It had not destroyed the right to relief by filing a common-law action against a carrier for failure to render service, or a common-law action of damages for failure to deliver merchandise. Only those common-law actions which are inconsistent with uniform regulation by the Interstate Commerce Commission were destroyed by the passage of the act.

Examination of the legislative history of the Motor Carrier Act, noted the court, revealed nothing to indicate that either the commission or the Congress ever contemplated that an action for vast interstate competitive injury would lie at common law when one motor carrier operated in excess of its authority.

Even if there was such a common-law right to damages, it would not have survived the passage of the act. Since the Motor Carrier Act itself made no provisions for private remedies for those injured by motor carrier violations of the act, the railroads had no right to damages. *Riss & Co., Inc. v. Association of American Railroads et al. 178 F Supp 438.*

Rate Increase Denied in View of High Equity Return And Rate Case Expenses Disallowed

CAROLINA WATER COMPANY failed to persuade the North Carolina commission that it needed a 30 per cent rate increase. While the company complained of increased costs, its revenues under present rates seem to have kept pace with the effects of increased expenses and added investment. The commission found that a rate of return of 6 per cent on a fair value rate base was reasonable, though present rates appeared to produce somewhat more than 6 per cent.

Carolina Water is wholly owned by General Waterworks Corporation. Of total capitalization of the operating utility, debt represents 63 per cent and equity amounts to 37 per cent. The commission calculated that, after adjustments, the company is presently earning 20.78 per cent on equity. This compares favorably with nonregulated industrials. With a 30 per cent rate increase, as requested, it would earn 37.57 per cent on equity. Its present income available for fixed charges is 3.46 times such charges. Under present rates the company earns 8.17 per cent on its actual investment plus gross plant additions, without allowing for accumulated depreciation.

Fair Value Not Mere Average

The commission fixed the fair value rate base at $482,000. This determination took into consideration, among other things, a net original cost of $379,689, a purchase price of $163,637 paid by Carolina Water, and a purchase price of about $165,000 paid by General Waterworks Corporation. Replacement new less depreciation was claimed at $832,500. Also

taken into account was $92,000 of net plant improvements added since the acquisition by General Waterworks.

Reproduction cost new figures, the commission noted, are based on trended costs and are at the most helpful, not controlling, in arriving at fair value. It pointed out that a simple average of reproduction cost new and book cost depreciated is mere mental gymnastics and not an acceptable formula for finding fair value.

Rate Case Expense Disallowed

No allowance was made for rate case expenses. The company claimed $13,000 for this item. The commission noted that Carolina Water had incurred rate case expenses in a four-year period approximately the equivalent of one year's net operating income. Rate case expenses should be borne by the stockholders rather than the ratepayers, the commission declared, where proposed rates have not been justified and there is no merit in the request for an increase. Otherwise, it would be possible for a utility to force rate increases upon its customers solely as a result of expenses incurred in abortive or frivolous rate cases. *Re Carolina Water Co. Docket No. W-54, Sub 8, February 24, 1960.*

Dial Converting Telephone Company Required To Construct Line Extension

THE Colorado commission held that a telephone company engaged in a dial conversion program was obligated to continue rendering service to customers located on an extension line, and was also under the duty to construct a new line so that such customers would be integrated with the new dial system.

A 14-mile irrigation ditch played a key rôle in the controversy. It had originally been constructed by pioneers who penetrated the mountainous area, and had become the arterial lifeline of the community. Without the ditch, there was arid, undeveloped land. With it, there was a small thriving community, with its prosperity irrevocably wedded to the land.

The residents of the town had constructed a telephone line to parallel the ditch, and it was this line around which the controversy centered. The telephone company contended that it did not really own the line, so that it was not obligated to integrate it with its new dial system.

Regardless of the issue of ownership, pointed out the commission, the company had exercised dominion and control over the line and had serviced customers connected with the line, on a magneto basis. This duty to serve did not cease upon conversion to dial operation.

Duty to Serve

A utility may be required to serve as long as an extension does not constitute a seizure of its property without due process of law, said the commission. As a corollary, the extension of service may be required if the service is needed and the costs of the extension are reasonable. If the utility can expend the money necessary to make the extension, and yet earn a reasonable return on its investment on the rates allowed by the commission, and without discriminating against other customers of the utility, then it may justifiably be directed to make the extension.

There was no question that telephone service integrated into the town system was absolutely essential to proper operation of the ditch, and there was no question that the ditch was the heart of the

community. Expenditure of over $20,000 to integrate the line extension with the new dial system, noted the commission, would still provide a return that was just and reasonable.

There was also no question of discrimination against the town residents, when the cost and revenues of the line extension were considered in the determination of the overall rate, since service to the ditch was of direct benefit to the residents of the town, and operation of the ditch was vital to the economic survival of the town.

Abandonment

The commission pointed out that the company's failure to integrate the line by the construction of a new line available for dial service would constitute an attempt to abandon service. The burden of proof to justify abandonment was upon the company, and the company had not shown just cause to warrant commission approval.

The company was granted a rate increase after it had been directed to construct the line extension. The new rates would produce a return of 3.4 per cent on invested capital and 17.3 per cent on common equity. Such returns were considered reasonable by the commission. *Re Nucla-Naturita Teleph. Co. Application No. 17415, Case No. 5167, Decision No. 53799, January 22, 1960.*

Telephone Rate Increase Granted on Year-end Rate Base Allowing for Earnings Requirement and Capital Needs

INTER-COUNTY TELEPHONE AND TELEGRAPH COMPANY secured somewhat less than one-third of an exchange rate increase which it proposed to the Florida commission. A rate of return of 6.67 per cent was allowed on a year-end, book investment rate base. The company had sought a rate of return of 8.05 per cent on substantially the same rate base.

The additional revenue allowed in this case, if related to an average investment rate base, would result in more than 7 per cent return. The commission found that the authorized increase would be sufficient to enable the company to meet all operating expenses, depreciation and taxes, pay dividends and interest, and transfer money to surplus. It would also permit Inter-County Telephone to attract capital for a current expansion program. The commission pointed out that it was not so much concerned with the traditional rate of return as with the utility's dollar earnings requirement.

Tax Deductions and Working Capital

The company's rate base computation was generally accepted. Fifty per cent of the annual accrual of federal income tax funds was deducted from the rate base as a whole. Accruals are available to the utility to invest or expend as it desires, the commission noted, and the money cannot be identified with any specific component in the rate base.

No cash working capital was allowed for exchange service because exchange revenues are collected in advance. One-eighth of annual toll operating expenses, excluding depreciation and taxes, was allowed, on the basis of a 45-day lag in toll collection, in order to show the system and toll relationship to exchange for a complete analysis of the case. One year's use of materials and supplies in maintenance was considered a proper allowance for this item. *Re Inter-County Teleph. & Teleg. Co. Docket No. 5866-TP, Order No. 2875, February 15, 1960.*

Commission Refuses to Change Telephone Service Area Boundary Lines

THE Missouri commission denied an application by customers of one telephone company for an order directing service from another company. Boundary lines of service areas must be fixed at definite locations, pointed out the commission, so that it is inevitable that certain persons will be served by a particular exchange and their neighbors by another exchange.

This alone, however, does not result in undue preference for, or discriminate against, any person. Once such boundaries have been approved, they should not be disturbed unless it is clearly shown that they are arbitrary and unreasonable. Also, unless exceptional circumstances are shown, one company should not be permitted or required to invade the service area of another.

Even though the applicants lived in one trade area and all their business and social contacts and requirements were in that area and it was necessary to pay a toll to call that area, the commission was of the opinion that such facts were not important enough to justify changing the boundary lines. *Brønstetter et al. v. Southwestern Bell Teleph. Co. Case No. 14,300, February 9, 1960.*

Telephone Company Directed to Provide Foreign Exchange Service

THE Wisconsin commission, passing upon the request of two customers for extension of service from the exchange of a telephone company other than the company certificated to serve the area the petitioners resided in, pointed out that a change in boundary lines is ordinarily unnecessary where extended area service is available. The commission refused to require one of the companies to provide service on a direct basis, but held that the rendition of reasonably adequate service and public convenience and necessity required that foreign exchange service be made available to the petitioners.

Foreign exchange service, pointed out the commission, involves service from an exchange other than the one in which the customer is located. Such service can be obtained by the payment of premium rates and upon the assumption of certain construction cost obligations.

The company directed to provide foreign exchange service contended that restrictions in its foreign exchange tariff limited such service to customers located within one-half mile of a common exchange boundary and required that the service be made available on a single-line basis only. The commission directed that the restrictions be canceled, because the establishment of extended area service between the two exchanges obviated the necessity for the limitations.

The company presently serving the petitioners had never filed a foreign exchange tariff with the commission. The commission pointed out that it had authority to require the filing of such a tariff. *Re Mt. Vernon Teleph. Co. 2-U-5275, February 11, 1960.*

Franchise Right Includes Installation Of Regulators

THE New York supreme court granted a gas company's application for an order directing the city of New York to issue a permit to install a gas regulator with adequate ventilation in a public street, as prescribed by the commission. The company had been caught between the necessity of complying with the concededly reasonable order of the commission and the refusal of the city to permit the installations except upon its own terms. The instant case was a test case, referring to one specific location, but representative of 356 locations within the city.

The court held that the company's franchise right "to lay conductors for gas in the streets" included the right to install gas regulators in vaults in the streets, together with suitable vent poles. The city had contended that the regulators were not in the category of conductors and that even if they were, then the vault space in the streets into which they were placed and the vent poles required by state authority were not.

It must be borne in mind, said the court, that the company's franchise depends upon rights granted to it by the legislature. In interpreting the intent of the legislature, it had to be presumed that when, in 1848, the company had been granted the power to lay conductors for conducting gas through the streets, or in 1926, when a statute gave the company the right to lay conductors for gas in streets, it was intended that such conductors be installed and operated in a safe manner for the public safety and convenience, and not in such a manner as might lead to a disaster such as had occurred in Brighton, New York.

It was obvious to the court that the term "conductors" included more than the mere pipes through which the gas flowed. Regulators were part of the conductors as protective devices in the conduction system required for safe operation and for public convenience. The same reasoning applied to the vaults into which the regulators were installed and the vent poles required to be used in connection with such installation. Without them, the regulators themselves would be useless, since they had to be protected against weather, damage, and tampering. *Brooklyn Union Gas Co. v. Cashmore, 194 NYS2d 298.*

Interference Not Determinative of Radio Station License Amendment

THE U. S. court of appeals affirmed a Federal Communications Commission grant of a broadcast station licensee's application for permission to lower its frequency and its power and to change from unlimited time to daytime only. The commission was held justified in concluding that the gains would offset the losses. Though some 4,000 people in a limited area would lose primary night service, the new service would give some 50,496 more people interference-free daytime service in an area roughly four and a third times as great.

Another station licensee had claimed that the amendment of the permit would cause interference to portions of its own service area. The commission concluded that such interference was not sufficient to deny the grant.

A total of only 3.29 per cent of the appellant's protected population contour and 4.98 per cent of the protected area contour would be affected by interference. Twelve stations gave primary service to the entire interference area, and 16 additional stations gave primary service to portions of the area. The commission balanced the loss to this heavily served area against the gain to the relatively unserved area to be benefited by the grant. *Red River Valley Broadcasting Corp. v. Federal Communications Commission, 272 F2d 562.*

TV Construction Permit Grant Affirmed

THE U. S. court of appeals has affirmed the Federal Communications Commission's decision to stand pat on the permit to construct and operate a television station at Flint, Michigan, it had originally granted to one of three mutually exclusive applicants. The court had remanded the case to the commission with directions to conduct further hearings on the differences between the successful applicant's original and modified proposals, and to reconsider the grant in the light of the differences disclosed.

The record showed that the commission had justifiably concluded that the new transmitter site proposed by the successful applicant was as desirable as the old one and served the public interest as well as the sites of the other applicants. So far as programing was concerned, the commission properly held that there were no substantial changes in the essential elements of local live and remote broadcast. As to the studio building, the commission had rightfully found that, so far as studio and technical matters were concerned, the original proposal had not been altered materially.

The court concluded that full and comparative hearings had been afforded the respective parties, so that there was no basis for disturbing the commission's latest decision. *W. S. Butterfield Theatres, Inc. et al. v. Federal Communications Commission, 272 F2d 512.*

In a companion case, the court affirmed the commission's denial of an intervener's protest to the construction permit modification. This intervener had filed a fourth mutually exclusive application after the court had remanded the original grant. The commission had held that, under its cutoff rules, this fourth application had been filed too late. *Lake Huron Broadcasting Corp. v. Federal Communications Commission, 272 F2d 515.*

FCC Rule Modification to Accommodate National Defense Upheld

THE U. S. court of appeals affirmed two Federal Communications Commission orders effecting rule changes and reassigning frequency bands, some reserved for exclusive government use. One order denied an application for experimental use of a certain frequency band for the development of an air-borne aircraft collision avoidance system. The other order terminated the use of another band for radio navigation and made such band available exclusively for government use and radio positioning.

The commission's determination that the government need for national defense was paramount and vitally transcended

nongovernment use of the frequencies involved, held the court, was not arbitrary or unreasonable, and did not violate treaty obligations.

Even assuming the very substantial public interest in and need for an airborne collision system, the commission's action was reasonable.

The Office of Defense Mobilization, acting in behalf of the executive branch of government, had told the commission that reallocation of frequency bands for government use was essential to fill radio positioning requirements which could not be accommodated in frequency bands theretofore allocated for government use. The commission had justifiably honored the exercise of executive prerogative. *Bendix Aviation Corp. v. Federal Communications Commission, 272 F2d 533.*

Piecemeal Severance of Certificate Granted Despite Commission Admonition

THE Colorado commission granted a motor carrier's application for extension of its bulk cement hauling certificate to include the transportation of sacked cement. The applicant also possessed a certificate granting general freight authority, and had been transporting sacked cement under the latter certificate.

Piecemeal Severance

The applicant had contended that there were certain aspects of its freight authority that were unique, or specialized in nature, and that these aspects should be regarded and treated as separate special authorities. If the logical consequences of such reasoning were followed, the commission answered, any carrier doing a substantial amount of transportation of one commodity to varied customers could claim that that transportation should be performed under a separate authority. This would result in the dissection of a general freight authority into a series of specialized authorities, leaving under the general authority only those remnants of the business that were unable to sustain themselves as separate authorities.

To permit such a practice would be inimical to the welfare of the shipping public, the commission thought. As a general principle, the commission should not authorize the piecemeal severance of certificates into specialized carriers, except in rare instances where the public interest may be served.

In this case, the commission decided, the public interest would be served by extending the bulk cement certificate to include transportation of sacked cement. Denial would serve only to contribute to inefficiency, since the carrier had previously been authorized to do precisely the same thing on the same commodity, only in a different form.

Sale of Authority

The commission was cognizant that, by granting the requested authority, the applicant was enabled to sell off its entire cement authority, separate from its freight authority. As a matter of fact, the applicant had urged such possibility as one of the salutary results and reasons for the granting of the application.

The commission emphasized that such a consideration was of little or no weight. The primary and paramount responsibility of the commission is to protect the public interest, and it is not the commission's function to create monopolies and privileges for the sole benefit of those engaged in the industries under its jurisdic-

tion. Protection afforded such industries was authorized only for the purpose of protecting the public interest. The commission hoped that the carrier would realize it could not claim the privileges and advantages of a regulated private enterprise and at the same time assert and seek the protection of a regulated industry when it was to its benefit. *Re Southwestern Transp. Co. Decision No. 53805, Application No. 17603, PUC No. 268, January 29, 1960.*

Other Recent Rulings

Natural Gas Rate Change. Section 4 of the Natural Gas Act controls rates both under temporary authorization and under permanent certification, the Federal Power Commission pointed out, and the rate as originally established on commencement of service remains the effective rate upon permanent certification unless rate changes are filed. *Re Pan American Petroleum Corp. et al. Docket Nos. G-15047, G-15813, February 5, 1960.*

Temporary Pipeline Authority. The Federal Power Commission pointed out that the Natural Gas Act confers ample authority for the granting of a temporary certificate to a pipeline to meet additional consumer requirements during critical winter periods, and applications by protestants to rescind an order granting such a certificate to Texas Eastern Transmission Corporation were denied. *Re Texas Eastern Transmission Corp. Docket Nos. G-18968, G-18969, February 5, 1960.*

No Retroactive Rate Filing. In denying a rehearing application, the Federal Power Commission declared that no filing of a retroactive rate was involved where a group operator of producing properties was permitted to file increased rates, superseding increased rates previously filed by individual nonoperators, so as to protect the nonoperators' interest and preserve their filings. *Re Middle States Petroleum Corp. et al. Docket Nos. G-4932 et al. February 9, 1960.*

Participation by Commission Assistants. The U. S. court of appeals held that a new route certificate granted by the Civil Aeronautics Board was not invalid merely because assistants to two board members had participated and voted in place of their superiors, where the votes had been cast after two days of discussion by the board, with all members present and had been cast in compliance with instructions given by the superiors. *Re Eastern Air Lines, Inc. et al. 271 F2d 752.*

Lessor's Duty to Serve. The U. S. court of appeals held that a carrier which leases mere trackage rights to another carrier is under no obligation to carry on the other carrier's operations when its lease expires or the other carrier's operations are legally abandoned. *Meyers et al. v. Famous Realty, Inc. et al. 271 F2d 811.*

Eminent Domain Power. A U. S. district court ruled that a state commission had no authority to interfere with the closing of a railroad underpass undertaken by a railroad pursuant to a contract with the federal government under the latter's power of eminent domain in connection with a dam project. *United States v. Certain Parcels of Land in Williams County, N.D. 178 F Supp 313.*

Jurisdiction over Rail Crossing. A showing of public necessity is not required for a proposed crossing by one railroad of another, and the state commission has no authority to inquire into or determine whether the crossing should be made, a federal district court held. *Great Northern R. Co. v. Chicago, St. P. M. & O. R. Co. et al. 99 NW2d 439.*

Amendatory Power. The Colorado supreme court pointed out that the right of the commission to amend a certificate does not authorize an amendment which provides for an entirely new service which the certificate expressly precludes. *Colorado Transp. Co. v. Colorado Pub. Utilities Commission et al. 347 P2d 505.*

Crossing Stops. The California commission held that drivers of vehicles are under a statutory duty to stop at all industrial or spur track crossings except those which, with the approval of the commission, display distinctive signs indicating that no stop need be made and there is no other vehicle approaching the crossing upon the tracks, and the sign can be readily seen or read from the driver's position. *Re Rules Relating to Industrial or Spur Track Crossings, Decision No. 58885, Case No. 5979, August 18, 1959.*

Credit Position as Factor in Return. The Indiana commission held that a water company's proposed method of financing a construction program was pertinent in a rate proceeding since one of the requirements of a fair rate of return is that it be adequate to enable the utility, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. *Re West Lafayette Water Co., Inc. No. 28264, November 25, 1959.*

Expenses after Test Period. In a water rate proceeding, the Pennsylvania commission allowed salary and wage increases which occurred less than two months after the end of the test period. *Egan v. Jersey Shore Water Co. Complaint Docket No. 17099, January 4, 1960.*

Discontinuance of Unprofitable Passenger Service. The Maine commission held that a railroad which has an overall profitable operation cannot necessarily expect all segments of its operation to be profitable and may be required to carry some service at a loss in the interest of the public. *Re Bangor & A. R. Co. R. R. No. 3482-FC No. 1531, January 14, 1960.*

Dividends and Pay-out Ratio. The Connecticut commission rejected as excessive a claim by a water company for sufficient earnings to pay dividends at the rate of 7 per cent of par value annually, with a pay-out ratio of less than 50 per cent, but a dividend was authorized on the basis of a 75 per cent pay-out ratio. *Re Plainville Water Co. Docket No. 9867, January 19, 1960.*

Chartered Party Service. The New York commission held that a bus company's contract service to a commuter group, whereby the amount paid by each member of the group was fixed in advance each month and the members paid their assessments for the month without regard to the number of times they rode, constituted chartered party service. *Re Zeh, Case No. 20445, February 9, 1960.*

Industrial Progress

Peoples Gas System to Spend $113,00,000 in 1960

THE cost of 1960 expansion programs and normal construction and exploration activities of companies in the Peoples Gas System will be about $113,000,000, Eskil I. Bjork, chairman of The Peoples Gas Light and Coke Company said recently.

Included in the 1960 programs of System companies are two pipeline expansion projects pending before the Federal Power Commission. These projects involve, in the aggregate, a maximum delivery of 185 million cubic feet of gas per day.

The Peoples Gas System is continuing its efforts to locate underground geological formations in Illinois suitable for large volume storage of gas, Mr. Bjork said. The parent company has on file with the Illinois Commerce Commission an application for authority to test and develop, on a pilot basis, a projected new underground gas storage facility near the village of Mahomet in Champaign county. If the project is successful it will be utilized by Peoples Gas to meet the winter fuel needs of its customers in Chicago.

Union Hill Gas Storage Company, a subsidiary, is pursuing exploratory activities in other areas in Illinois. Mr Bjork stated that it is the present thought that additional reservoirs which may be discovered would be developed for all of the customer utilities served by System pipeline companies in the event that Peoples Gas is successful in developing a storage facility of sufficient magnitude at Mahomet.

Peoples Gas also is endeavoring to acquire storage rights in a small depleted gas field in southern Illinois.

Natural Gas Storage Company, a subsidiary, earlier this year sought FPC approval of an increase of 75 million cubic feet of gas per day in the withdrawal capacity of its facilities near Herscher and Cooks Mills. In large part this stems from the continued development of the Mt. Simon structure at Herscher as a storage facility.

If all the planned expansion projects can be approved and implemented in time to permit the attachment of additional loads before the end of the year, Peoples Gas System expects to offer space heating service to all, or to substantially all, applicants currently on its waiting lists, Mr. Bjork said.

President of AGA Says Nation's Supplies of Natural Gas Enough For 'Generations of Consumers'

THE United States has enough natural gas to serve generations of future consumers, the president of the American Gas Association indicated recently in an address at the New England Gas Association's annual meeting.

Wister H. Ligon, president of both AGA and the Nashville Gas Co., Nashville, Tenn., told industry leaders that the nation's proved recoverable reserves of natural gas reached an all-time high of 262.6 trillion cubic feet at the end of 1959, despite record production of nearly 12.5 trillion cubic feet during the year.

Mr. Ligon cautioned, however, against dividing proved reserves by annual production in an attempt to determine the number of years' gas supplies remaining.

"The figure will mean little," he said, "because it will not take into account the vast ultimate reserves which experts say exist in this country. These ultimate reserves amount to between 1,100 and 1,700 trillion cubic feet, the average estimate being approximately 1,400 trillion cubic feet."

At current levels of production 1,400 trillion cubic feet represents at least 100 years' supply.

The gas industry leader also noted that the American Gas Association's year-end report on proved reserves excludes "huge supplies of gas known to exist in Canada and Mexico."

Natural gas now is imported from both countries, and at least four U. S. companies currently have applications pending for the importation of additional Canadian gas.

Mr. Ligon added that "countless trillions" of cubic feet of gas can be made available for future consumers as the industry's researchers perfect their processes for producing synthetic natural gas from oil shales and low-grade coals. The American Gas Association's research program includes several projects in the field of synthetic gas production.

The AGA president told New England gas industry executives that one oil shale deposit in Colorado is believed to contain 23 times more gas than present proved recoverable reserves.

"That Colorado deposit alone could provide us with an estimated 6,000 trillion cubic feet of gas," he said. "I mention these astronomical figures because they indicate the United States is in no danger of running out of gas in the foreseeable future."

Gibbs & Hill Retained by Toledo Edison

GIBBS and Hill, Inc., New York consulting engineers, have been retained by the Toledo Edison Company as consultants in the design and construction of a third generating unit to be installed in the company's Bay Shore Station.

This was announced recently by P. R. Knapp, Edison's vice president

(*Continued on page* 16)

in charge of operations. Mr. Knapp said initial engineering studies are being made and construction is scheduled to start in March, 1961, for completion in 1963. Included will be a turbogenerator, boiler, condenser and related equipment. The size of the unit has not yet been determined, he said.

Supervising project engineer for Gibbs and Hill will be R. M. Heidenrich.

The new generator will be the largest single item in the $66,000,000 construction program planned by Toledo Edison for the next five years.

Brown Trailer Serves as Emergency Mobile Telephone Exchange

PACIFIC Telephone (Northwest) in Seattle and Clark Equipment Company's Brown Trailer Division have teamed up to develop a mobile telephone exchange office capable of handling 4,400 customers in an emergency.

Designed to be moved anywhere in the state of Washington within a matter of hours, the unit has its own heating plant, can utilize power from a portable generator and was constructed from a basic Brown Cargo Van body kit. It has five positions for five operators, can be pulled by any telephone truck and makes it possible for the telephone company to provide emergency service within eight to 10 hours, including estimated travel time from its storage garage in Seattle.

Freeland Joins Commonwealth Services

FRANK Freeland has joined the rate department of Commonwealth Services, Inc., according to an announcement. Mr. Freeland will work with Commonwealth clients on problems involving all phases of rates and regulatory matters, according to W. B. Tippy, president of the management and engineering consulting firm.

During the past six years, Mr. Freeland has been an independent consultant to public utilities and also served as an Administrative Officer for the United States Department of the Interior on special assignments.

From 1947 to 1954 he was responsible for all rate and regulatory matters of Hawaiian Telephone Co., Honolulu, Hawaii, advancing to the position of Assistant Treasurer and Budget Director. While in Hawaii, he served as a member of the Governor's Tax Study Committee and as Chairman of the Hawaiian Economic Conference for Public Utilities.

Prior to 1947, Mr. Freeland was Rate Engineer for California Electric Power Company and for the California Interstate Telephone Company.

Gas Appliance Men See Volume Up 8% in '60, 50% by '65

THE gas appliance industry—which last year sold 9,100,000 pieces of household equipment, bringing total units in use to 107,000,000—expects at least eight per cent more business this year and, by 1965, a sales increase of 50 per cent over the current annual rate.

Predicting that sales volume will reach $2,725,000,000 in 1960, Edward A. Norman, president of the Gas Appliance Manufacturers Association, told 500 delegates to the group's 25th annual meeting in White Sulphur Springs, West Va., recently, that

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combined gas industry revenue, including utility gas, bottled gas and appliance sales, will top $9 billion this year. That would be nearly 20 per cent higher than in 1955.

"In the next five years we look for new housing, home modernization and equipment replacement to create a situation where the average home will be using at least five major items of gas equipment instead of one, as of a decade ago, or three-plus, as of now," he said.

Mr. Norman, who is also president of Norman Products Co., Columbus, O., explained that 45,000,000 homes in the U. S. now use 34,000,000 gas ranges, 43,000,000 pieces of gas heating equipment, including central and room heaters, 24,000,000 gas water heaters and a total of more than 7,000,000 gas dryers, refrigerators, incinerators, gas air-conditioning systems and gas lamps.

Sixteen million of the gas ranges in use are more than 10 years old, the GAMA official said, adding that "the industry is taking dead aim at this huge replacement market for ranges and other obsolete home equipment."

Big Load-building Potential Seen In New NEMA Promotion of Refrigerator-Freezers

AN extra 800 kilowatt hours a year per home was the bonus load potential held out to power producers recently in the 1960 Refrigerator-Freezer Promotion Package sponsored by the Household Refrigerator and Freezer Section of the National Electrical Manufacturers Association.

A "Report to Utility Executives," which went to top-ranking utility officers several days before the promotion package was mailed to sales promotion and advertising executives, pointed up the fact that today's most popular refrigerator-freezer, 13 cubic feet, uses about 1,300 kwh per year. This is about 800 more kwh than is consumed by the most popular refrigerators, between 8 and 10 cubic feet.

The report further notes that the refrigerator load, "a day-in, day-out non-peaking load, is the utility's biggest residential load-builder."

The theme of the promotion, "An electric refrigerator-freezer is a Supermarket in Your Kitchen," is designed "to dramatize the time- and work-saving convenience of the multi-door combination units."

The "Supermarket" package spearheads a year-round NEMA refrigerator-freezer campaign kicked off January 1. It is the first major refrigerator promotion sponsored by the NEMA section.

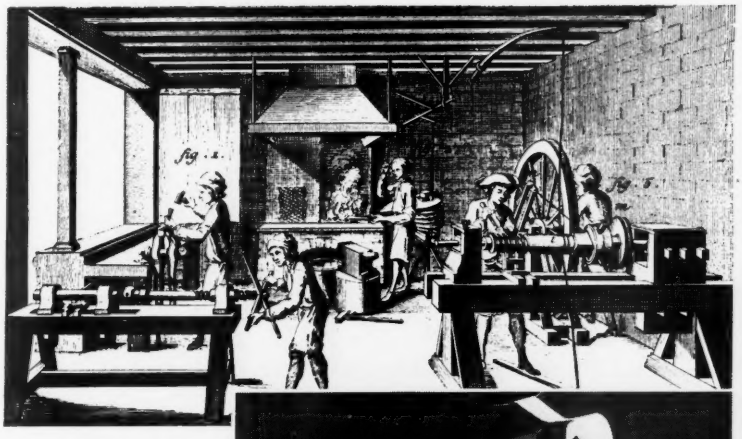
American Elec. Pwr Awards Contracts for Hydro Project

AMERICAN Electric Power Service Corporation recently announced the awarding of contracts totaling $11½-million for major equipment for the proposed Smith Mountain combination hydro-electric project on the Roanoke river in Virginia.

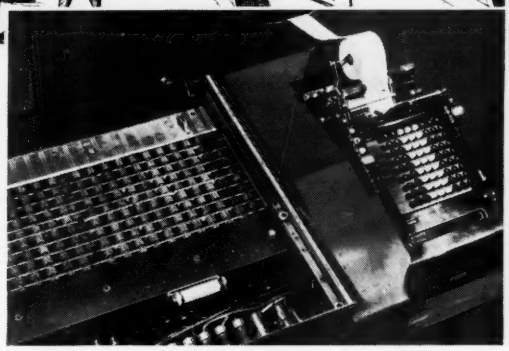
The development, which will be the largest combined river flow and pumped storage hydro-electric installation in the United States, will be owned and operated by Appalachian

(*Continued on page* 18)

many steps vs. "ONE"



In this early machine shop screw patterns were first traced by hand, then threads cut by machines which are primitive by present day standards.



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Power Company, a major operating company of the American Electric Power System. The AEP Service Corporation provides management and technical services, including design, engineering and construction supervision, for the AEP System companies.

The equipment for which contracts have been let includes turbines, generators, transformers and switchgear, and is to be furnished by five American manufacturers.

Along this line, President Philip Sporn commented, "We are particularly pleased to make this announcement because of the fact that we were able to purchase all of the major equipment for this development from American industry. I would like to commend the manufacturers at this time for the cooperation which made this possible."

At the same time, the company also announced that it had let a contract to Sollitt Construction Company, of South Bend, Ind., for the general construction of the upper dam at the two-dam development.

M-H Moves Into Moderate-Price Computer Field

A COMPUTER that is expected to make high-speed electronic data processing practical for more than 6,000 of the 10,000 top companies in the U. S. was introduced recently by Datamatic Division of Minneapolis-Honeywell. It is rated as able to perform 6,000 operations per second.

Walter W. Finke, Datamatic president described the "new-generation" computer as the "most powerful available in the moderate-price field." He said it will make high-speed electronic data processing economical for thousands of additional companies "because it provides more data processing per dollar spent than any previous equipment of similar size. Heretofore, high-speed electronic data processing has been practical for only a relatively small number of the largest cor-

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April 13, 1960.

p rations," Mr. Finke said.

He said introduction of the new s stem, known as the Honeywell 400, " roadens Honeywell's line to include n oderate-price as well as larger data p ocessing equipment, and represents a najor expansion of Datamatic Divisi n's activity in the computer busine ss."

F C Authorizes Construction by Peoples Gulf Coast Natural Gas Pipeline

THE Federal Power Commission has approved a budget-type construction proposal by Peoples Gulf Coast Natural Gas Pipeline Company, of Chicago, Ill.

Peoples was authorized to construct facilities not to exceed a total cost of $1,500,000, with the cost of any single project limited to $375,000. The facilities will be built from time to time during 1960.

The proposed facilities will be used to enable Peoples to take into its main transmission system natural gas purchased from independent producers in the general area of its existing pipeline system.

Three Pipeline Companies File Budget-Type Construction Applications

BUDGET-TYPE construction applications have been filed with the Federal Power Commission by Transwestern Pipeline Company and Trunkline Gas Company, both of Houston, Texas, and Kansas-Nebraska Natural Gas Company, Inc., of Hastings, Neb. The three proposals are not related.

Transwestern (CP60-26) proposes to construct facilities having a total cost not in excess of $3,000,000, with the cost of any single project not to exceed $500,000. Trunkline (CP60-3) would build facilities whose total cost would not exceed $1,500,000, with the cost of any single project limited to $400,000. Kansas-Nebraska (CP60-20, 583) proposes to build facilities having a total cost of not more than $1,500,000, with the cost of any single project not to exceed $250,000.

The proposed facilities, all to be constructed during 1960, would be used to augment the pipeline companies' ability to act with reasonable dispatch in contracting for and connecting to their pipeline systems new supplies of natural gas in various producing areas generally coextensive with their existing systems.

Transformer Brochure Available From Federal Pacific

"FEDERAL Pacific Transformers," a four-page brochure celebrating the company's fiftieth year of progress in designing and manufacturing transformers, has been published by Federal Pacific Electric Co.

Illustrated in the brochure are the wide variety of transformers available from Federal Pacific to meet applications ranging from 10 kva to 10,000 kva. These include unit substation transformers, both liquid-filled and dry-type, distribution transformers, and power transformers.

Copies may be obtained from Federal Pacific Electric Co., 50 Paris St., Newark, N. J.

G-E Catalog of Low-Voltage Distribution Equipment

THE General Electric Company announces release of its 1960 edition of the *Buy Log*. The 84-page *Buy Log* (GEC-1100B) covers low-voltage distribution equipment. The *Buy Log* is issued jointly by G.E.'s Distribution Assemblies and Circuit Protective Devices Departments, Plainville, Conn.

The *Buy Log* is designed to serve as a condensed buying catalog for products of the two Departments, including service entrance equipment, light and heavy duty safety switches, tumbler and open-knife switches, hinged wireway, circuit breakers, switchboards, motor control centers, sectional distribution centers, and all types of panelboards and busway.

The *Buy Log* is designed so that application, selection, pricing and ordering information can be found quickly and easily. Among the many features of the *Buy Log* are: Selector charts for each type of product, pictorial descriptions, consolidated pricing tables, and a cross-referenced catalog number index.

Also included are ratings, weights, dimensions, standard package quantities, ordering directions and several pages of general application information.

Copies of the *Buy Log* catalog (GEC-1100B) are available from Distribution Unit, General Electric Company, Plainville, Connecticut.

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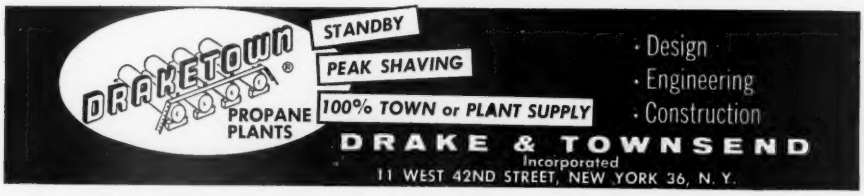

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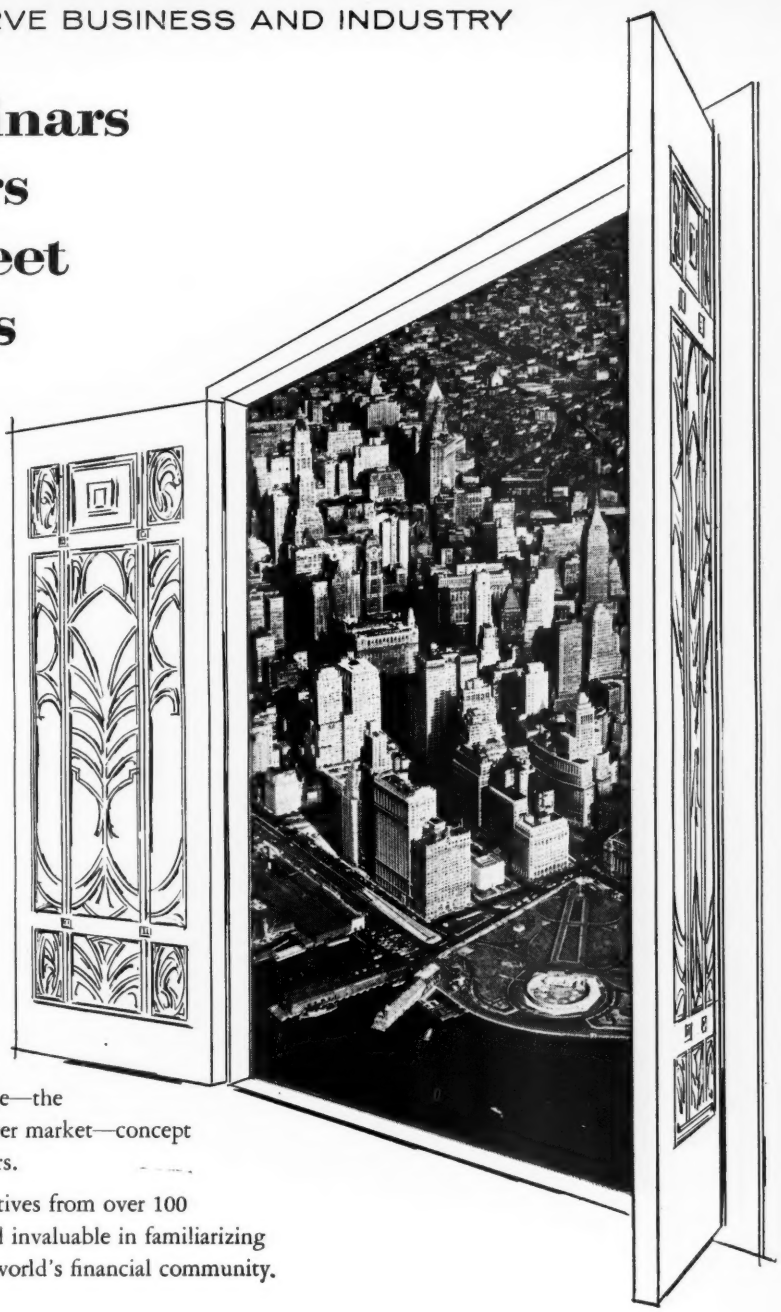

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MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

General Electric reports on developments in...TRANSMISSION

Recent developments in mobile transformers help utilities . . .

REDUCE INVESTMENT IN RESERVE CAPACITY

TO SERVE GROWING LOADS and to reduce transmission system investment, electric utilities are steadily increasing the size of transmission stations and the ratings of station transformers. In addition, many utilities are finding the *mobile transformer* an important tool to further reduce system investment.

MOBILE TRANSFORMER CAPACITIES, however, have had to expand with expanding systems. And they have.

Ten years ago, the highest-capacity mobile transformer built was rated about 6000 kva. Today, General Electric has built and sold mobile units rated as high as 40,000 kva.

Electric utilities have been quick to recognize the savings in system reserve capacity which larger capacity mobile transformers make possible. The proof? 34 percent of all mobile units (substations and transformers) in service today have been purchased in the past 3 years. And 40 percent of current General Electric sales in mobile units are mobile transformers, which have emerged as separate products with distinct applications.

Mobile transformers are being used primarily for reserve capacity, today, while the mobile substation has found its place as a maintenance tool.

SAVINGS that may be obtained through use of mobile transformers are often highly dramatic. Some utilities have found that mobile units pay for themselves in one year. The reasons are clear:

- One mobile transformer can serve as emergency capacity for a number of stations distributed over a wide area.
- With mobiles, existing installed capacity can be used more efficiently. Much higher loading of all station facilities is possible.
- Larger capacities available today extend use (and economies) of mobiles to a larger percentage of transformers used over an entire system.

OTHER IMPORTANT BENEFITS causing electric utilities to look with increasing favor on mobile transformers include the *speed* with which they may be put into service in case of emergency and the *improved service continuity* they make possible, with consequent returns in customer good-will.

NEW CONCEPTS in design, in materials, and in manufacturing have made possible great increases in the kva capacity of mobile transformers in just the past few years. Important as these developments are, they represent only a fraction of the total effort devoted by General Electric to its most important mission: to work with electric utilities to get more power on the line and to keep the cost of power low. General Electric Co., Schenectady 5, N. Y.

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GENERAL ELECTRIC

PACIFIC GAS AND ELECTRIC linemen tap in on high-voltage bus in initial test of G-E 40,000-kva, 230-kv mobile transformer.

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